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DECEMBER 2000

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Will you buy gifts online this year?

A year ago, many pundits were predicting that e tailing would be a huge force during the 2000 gift buying season. Bricks and mortar retailers that did not have an e commerce capability were told to beware—they would surely be pummeled by the invading horde of dot com merchants

What a difference a year makes. First, there was a general dot com meltdown mid year (blame it on that darn bubble-bursting reality called revenue generation) then reports started trickling in that some of the darlings of the new economy were running on empty, having blown the IPO wad. A retail e commerce report commissioned by Microsoft Canada earlier this fall pulled the reins a little tighter on the previously unbridled optimism toward e-commerce about the bags of cash to be made simply by listing some merchandise on a Web site and adding a shopping cart. Canadian businesses, it seems, were in no hurry to jump into the e-commerce fray

At the business-to-consumer retailing level, this shouldn't be too surprising on some reflection When you switch on the Internet and try to set up shop there, what do you have? Much of business-to-consumer e commerce is simply mail order in a spiffy new suit. Historically mail order retailing has not been nearly as successful in Canada as it has south of the border In the U.S., there was a thriving mail order economy with small and big businesses selling everything from shirts to music long before the Internet—or personal computers, for that matter—came along If you are a Canadian of a certain generation, the Eatons and Sears catalogues were part of your growing up, but those are just two Canadian examples compared to the scores of mail order catalogues that were available to American consumers.

In fact, Canadian retailers, especially those selling specialized product lines, often saw U.S mail order as their biggest threat. They could always have tried setting up a Canadian mail-order division (and some did) to serve a relatively small market of Canadian consumers who liked shopping that way But the big barrier to success was that those Canadians who liked to shop by mail order already believed that the selection—and, usually, the price—was better across the line

With e tailing, you have an even smaller pie of Canadians with a penchant for mail-order shopping who also have Internet access. About 60 percent of Canadian households have a PC at home but less than half of that group has Internet access But just a minute, you might say E commerce is not about doing business locally regionally or even nationally It's about having access to a global market

> I think that any bricks and mortar retail business panicking because it doesn't have an e-tailing strategy in place should take a seltzer and a deep breath...

For a company that already has a global outlook, the Internet will only help by making the shopping and buying process simpler Dell Computer is a case in point. It was already a successful mail order computer company with an international outlook, and was able to use the Internet to improve all the things it was already doing

I think that any bricks and mortar retail business panicking because it doesn't have an e tailing strategy in place should take a seltzer and a deep breath, then try to build a business case for adding a mail-order or catalogue division to its existing business If that plan makes sense, the Internet will introduce all kinds of efficiencies into the process. But if mail order is a ludicrous prospect, then an Internet store may be too

There are of course, many other ways a business can use the Internet to improve its existing activities, from marketing to customer service. The biggest promise is the global marketplace and a path to expansion. But if you are selling goods, making sure they efficiently get from your warehouse to the customer's hands is a fundamental requirement You've got to get that part right, whether selling goods face to face or online

As we get into the shopping season more of us will consider buying something online I know I will But I went to the mall at the end of October, just when the Christmas decorations were being installed And I have to admit I found the red bows, tinsel and goofy Santas a cheerful sight. In the coming weeks, I'll complain as loudly as anyone about the crass commercialism of it all, and about the crowded stores But I'll be out there jostling with you for that perfect gift. For better or worse, the bricks and mortar shuffle is still part of the seasonal experience

...

On behalf of everyone at *The Computer Paper*, I would like to extend the best of the season to our readers, and to our advertisers who supported us during the past year. Our organization underwent some change this year, but what didn't change was the constant feedback from you, our readers The feedback tells us that you are reading us, and for a publication, that's a tremendous reward

Best of the season to you,
David Tanaka, Editor

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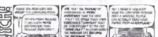
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NO, I MEAN IF YOU KEEP YOUR BIG COMPUTER MONITOR NEAR A WINDOW, PEOPLE CAN ACTUALLY READ YOUR MEMOS FROM AN AIRPLANE!

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SW ONTARIO EDITION	Southwestern Ontario	30,000
GREATER TORONTO EDITION	Greater Toronto	[illegible]
EASTERN EDITIONS	Montreal	55,000*
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	Atlantic	5,500*

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February 2001
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Lab Test: SOHO networking
Tech Enterprise: E-commerce and the small business

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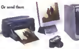

Copyright: What freedom? To steal?

I was certainly pleased to read an article indicating that *The Computer Paper* has the courage to tackle the complex and dangerous matter of copyright ("Copyright takes a beating on Net" November issue) However I disagree with almost all the opinions reported in the article

Your writer, Tom Venetis, described the problem in a nutshell. He wrote (regarding the Napster situation and the widespread sharing of music) "...they simply download it onto a PC—without ever having to pay a cent to the copyright holder" Only an idiot would not realize that someone is being ripped off by this common procedure The examples of piracy on the Internet reveal that the problem is a widespread lack of simple ethics.

Randal Davis, of MIT, was quoted. "Technology has drastically lowered the barriers to infringement." If he means that it's now easy to steal with impunity, then he's, of course, absolutely right—just as it might be easy to walk out of a music store with a handful of CDs if one could be sure of not being caught. Would the computer generation do that if there were absolutely no chance of punishment? Judging from the behaviour of thousands of Napster addicts, the answer must be, yes! Is that just a lack of ethics and manners or is it criminal behaviour?

Richard Stallman, "a proponent of the free software movement," has a anarchist's view of the problem. He apparently does not agree with the idea that in order to make money, you must restrict people's rights to copy the work and send it to friends He's quoted "Just because a person is willing to work hard does not entitle them to take away your freedom" By that he means your (our) "freedom" to steal How can copying an artistic work against the author's wishes be considered a "freedom?" Mr Stallman is applying "newspeak" to the 21st century

In the present controversy of music downloading on the Net, the perpetrators are not just copying for "friends" but are sending the copyrighted material to thousands of total strangers.

Mr Stallman claims to have given away programs that he's written that were "years of work." He and all other authors, composers and artists certainly have that right, but none of them can justify the theft of intellectual property from the other authors, composers, and artists who want to be more protective of their labours

George Dunbar

I'm not going to take it any more

I infer from Sean Carruthers article "Windows or another OS flavour" (see TCP October) that he is resigned to frequent crashes and instability in his Windows 98 OS Not only does my system crash in the same manner but manages to cut off my printer at the same time even after reloading the printer driver

This situation has gone on far too long. Microsoft counts on the users of its operating systems to be meek placid, accepting and uncomplaining My solution? Refuse to buy any further "new and improved OSes Millions of copies of a newly released OS gathering dust on store shelves should catch someone's attention Software developers certainly won't write code for an unpopular OS At present we are being enticed by a "bigger and better" OS from Microsoft, the Me [Millennium Edition] This edition will be no different from Microsoft's previous OSes

There will be interminable upgrades, downloads, and patches to fix bugs, virus portals, and other assorted faults I say, leave it on the shelf.

I fervently hope that Linux becomes more and more mainstream I'll certainly jump on that bandwagon

Warren Ngo

Palm rules!

I've read too many articles in *The Computer Paper* (and elsewhere in the "freebie" press) by uninformed journalists on Palm computers. For example, in Jacques Surveyer's article in the August issue "Pocket PC a third time charm" he didn't even get the memory specs right for the Palm models.

So here goes—a typical day in the life of my "limited" Palm...

6.30 am PalmClock alarm wakes me.

6:35 am HotSync and AvantGo (free) offline Web browser picks up the news.

7.30 am HotSync with office PC to Lotus Notes.

7.35 am Check Calendar and ToDos for the day

8:00 am Meeting. Write minutes with Graffiti in Palm email app. No typing handwritten notes!

8:40 am Touch up minutes, HotSync and send just three minutes after end of meeting!

9:00 am Pull up latest stats in Quicksheet spreadsheet and review with boss. Set new targets show boss results in QuickChart.

9:30 am Fire up Project@Hand a full-featured project manager with real Gantt charts that syncs with Microsoft Project. Review progress with boss.

9:45 am Hotsync back at desk Quicksheet updates Excel, Project@Hand updates MS Project. Email both new files to boss.

10:00 am Coffee break. Read news in AvantGo, read email, show co-workers family photos in AlbumToGo (free)

10:30 am Meeting with supplier refer to 83-page trade terms doc file so I know what he is talking about. (doc reader free)

Continued on page 10

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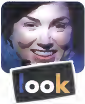

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Letters

Continued from page 8

11 45 am Back at desk I fire up MapBlast on AvantGo and put in an address and HotSync. Minutes later I have a map and detailed driving directions to a supplier
12 15 pm Play a few hands of FreeCell. Plug in modem surf on Prow-web (free), get updated company page, fire up Prow-mail (free) to check my personal home email
Fire up ICQ (free) to catch up with my online buddies.
Fire up PalmIRC to chat on my fave IRC channel
1 00 pm Check voice mail, jot phone messages in Dobllebug (free) set alarm for one message
1.30 pm Leave to visit a supplier following directions from MapBlast Discuss contract details and make notes in MemoPad. Boss calls, wants details to send to legal department. Supplier's fax is down, plug in modem, connect and send MemoPad contract details using HandFax.
3.00 pm Conduct presentation using SlideShow Commander to remotely IR control my PowerPoint presentation while referring to speaker notes in SSC.
4:00 pm Return to office. HotSync to update Lotus Notes. Set up new meetings and ToDo s for following day
4.30 pm Pull up expense items from Palm to Excel and print expense statement.
6 00 pm Arrive home and HotSync to update Outlook. Wife has updated the shopping list in MemoPad and son's football practice for 6 30pm. While at practice I use TakeNote word processor and integrated thesaurus WordSleuth to write this letter
10:00 pm Catch the TV news. Can't find the remote. No problem I have Omni Remote on the Palm
11:00 pm Off to bed. Wife sleeping. Lights out. No problem, with the Palm's backlight, I can read one of the thousands of free e-texts of classic literature without disturbing anyone.

Yes it really is too bad the Palm is just a pricey, limited use electronic organizer instead of a real computer like Windows CE or Pocket PC [device]! I'll challenge any Windows CE/Pocket PC user any day and I'll run circles around them!

Why does the Palm hold 70 percent of the market? It's fast, simple and can accomplish in as little as 2 MB of memory and a 16 MHz processor what a Windows CE or Pocket PC needs 8 MB and a 133 MHz plus processor to do! Why? Pocket PC (Microsoft's third try!) is still to much memory overhead and screen clutter on a small handheld! Consider also that there are *thousands* of software [applications] for the Palm versus only hundreds for Windows CE/Pocket PC!

For even more potential, check out the Handspring Visor at http://www.handspring.com and the Springboard expansion technology

I'm also tired of reading about how hard Graffiti is to learn. My nine-year old son entered 10 friends names and phone numbers into my Palm after only five minutes of instruction. He made infrequent references to the Graffiti chart! I rest my case

Brian Stavert

Another Windows 98 tune-up tip

Good article that Sean [Carruthers] wrote (see "Tune it up for performance" October issue) I avoid, at all costs, the dreaded System Tray devils that get installed there. One good tool I am surprised Sean didn't mention is included in Windows 98 and Me: MSCONFIG EXE (Sorry Windows 95 users, you'll have to copy the file from a Windows 98 or Me machine or follow Sean's guidelines). From there you can prune the culprits with a few quick clicks as well as some that you may not be aware of in the Startup Tab of msconfig. I like it better than sysedit. You can get to it by typing msconfig from the "run" dialogue in the start menu

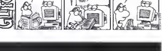
Larry Charters

Almost free software gifts

While these are free software by buying the CD ROM version, you will be saving your giftee a long download, and giving a backup of the application as well. These tools have been recommended before but are so good we have to recommend them again

- Sun's **Star Office 5.2,** http://www.sun.com, $60, comes on CD with documentation and is a real bargain. This office suite can read and write Microsoft Office format files including Word Excel and PowerPoint and adds its own nifty features and capabilities. And now programmers can get the source code and see how it is done. This is great software for free
- Copernic's **Copernic 2000 Plus,** http://www.copernic.com, $60, is a metasearch engine par excellence. Copernic allows you to look up ideas through about a dozen different search engines. Copernic has more than 500 groupings of engines and searches. You also get a copy of the Copernic Shopper, which allows you to look up the best price on dozens of sites for many online goods.
- Lach's **Juke 3 56,** http://www.zdnet.com/downloads, free, is a juke box for audio or video that allows you to create, play, and exchange albums
- ACDSystem's **ACDSee 3 1,** http://www.acdnet.com, $96, is an image browser and viewer that allows you to drag and drop thumbnail size images from an album into programs that accept images, like Word, Photoshop, PhotoPaint, Pagemaker, Quark Front Page, GoLive, and more. Lots of extras

—Jacques Surveyer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WHAT'S NEW

US Robotics rides again

ROLLING MEADOWS, ILL.—Just because 3Com acquired US Robotics (http://www.usr.com) then pulled out of modems, ditching the company's name in the process, doesn't mean it is dead. The name and factory resources have been acquired by several of its senior staff and a new series of modems has been launched.

The first modem from the newly independent company, the 56Kbps Internet Call Modem, is now shipping, and others are in the pipeline. The new modem was co-developed with Net2Phone, the Internet telephony carrier and as the name implies, supports Internet telephony functions as well as the more usual datacomms facilities.

The PCI modem supports the Net2Phone VoIP service and US Robotics says, all Internet telephony calls routed via the modem to standard phone numbers in Canada and the U.S. are free.

With the new modem, users can avoid the need to use their PC's microphone and speakers to make Internet telephony calls. Instead, they can use a phone connected to the USR modem, and dial their Net2Phone calls using their standard keypad. This, USR says, allows users to experience the sound quality of a telephone.

Len Lande, USR's product line manager, said the Internet Call Modem is the first of several US Robotics products designed to make the Internet experience less intrusive and more user-friendly.

Where available, the new USR modem supports extended telephony features such as Call Waiting and Caller ID, supporting these facilities on waiting calls while a user is online to the Internet. The Internet Call modem will cost US$99.95.

—Newsbytes

Intel unleashes wireless peripherals

Intel Corp. has introduced a family of wireless PC peripherals for the home PC environment. Called the Intel Wireless Series, the lineup includes a gamepad, mouse, and keyboard. At the heart of the lineup is the base station, which allows users to connect up to eight Intel wireless devices to their PC.

"Today, adding wireless devices to your home PC can mean installing multiple receivers, with each receiver supporting one or two devices at best," Don Whiteside, general manager of the Intel Connected Products Division, stated in a press release. "Our family of products is designed to connect to a single base station, leaving the option for consumers to expand their PC and Internet experience without creating a tangle of messy cords."

Intel says the devices allow PC users to stand up or walk around "without breaking the flow of work or play." And with the gamepad users can "get physically involved in the game without tripping over wires." Up to four gamepads can be linked to the base station simultaneously.

Meet the family

Intel's Wireless Series (clockwise, from left) mouse, base station, gamepad and keyboard.

Intel says the base station utilizes a sophisticated radio frequency technology, and connects to a PC via USB. Setup requires installation of Intel Wireless Series Software, after which users plug in the base station, press a button on the gamepad, mouse, or keyboard, then press a button on the base station. The base station has lights that notify users of the system's battery, connection, and activity status.

The gamepad has a full set of controls including a directional-pad, six programmable action buttons, two triggers, and a shift button that doubles the functionality of the buttons and triggers. The included Gamepad Profile Editor and Profile Activator Software lets users customize up to 28 moves.

The Wireless Series keyboard features a palm-rest that folds neatly into the body of the keyboard for typing away from the desk. The keyboard includes four instant access buttons—to launch Internet access or other applications—and has multimedia controls, including CD volume and tracking, and system audio.

Rounding out the series is the mouse, which includes a scroll feature and can be used in both left and right hands.

System requirements

To use the Intel Wireless Series products, users need a PC with a minimum of Windows 98 or Me, a CD-ROM drive, and an available USB port. The gamepad and mouse each require three AAA batteries, while the keyboard requires three AA batteries.

The base station has a suggested retail price of US$59.99, the mouse is priced at US$59.99, the keyboard at US$79.99, and the gamepad at US$64.99. Bundles are also available for US$179.99 (base station, mouse, and keyboard) or US$109 (base station and mouse only). Intel is offering US$30 rebates for both bundles, and a US$20 rebate for the base station until March 30.

—Megan Johnston

30,000 sites sign on to Click2Talk

NEWARK, N.J.—Internet telephony carrier Net2Phone (http://www.net2phone.com), said its fledgling e-commerce division has seen more than 30,000 Web sites sign up to its Click2Talk service since it was launched in June.

Under the Click2Talk deal, Web site operators can install a simple set of HTML routines on their site, allowing users to place voice calls across the Internet.

Once this is done, users of the site can place PC-to-phone calls to a given U.K. or Australian phone number on demand. For personal Web sites, the carrier said, it means that friends and family can make calls to people free of charge.

Click2Talk is billed as a few simple lines of HTML embedded into a Web site. By clicking on the Click2Talk icon, a visitor initiates a call via their PC directly to a specified phone number.

Since the HTML code is associated with a specific telephone number that the Web site operator selects, a customer visiting a site can click on the Click2Talk icon and Net2Phone's new Java applet initiates a free phone call from their PC.

The success of Click2Talk in the U.S. has prompted Net2Phone to expand the availability of the product fully to Canada, the U.K. and Australia.

Click2Talk calls are free, with voice calls being routed from the Web host's site across the Net to the regular phone line in the relevant countries free of charge.

—Newsbytes

Delphi, Palm develop wireless auto

NEW YORK—Delphi Automotive Systems (http://www.delphiauto.com) and Palm Inc. (http://www.palm.com) have created a new company, MobileAria Inc., to develop a hands-free, voice activated mobile wireless service for motor vehicles.

The subscription based service will be available in new cars, as well as vehicles equipped with the Delphi Communiport MPC (mobile productivity centre, pictured), the Palm handheld device and a cellular phone, MobileAria co-founder Tom O'Gara said. The service will be available in the second quarter of 2001.

The service provides voice activated wireless Internet access to email, news, weather, stock quotes, flight information, directions/routing and traffic information, and to synchronize data with a desktop PC. Voice playback goes through the car's audio system, and all content can be stored on board, O'Gara said. The company aims to expand its service to include streaming audio and video, mobile commerce, stock trading, rich messaging and more location-based services.

—Newsbytes

Fujifilm unveils holiday lineup

Fuji Photo Film Canada Inc. has announced a digital photography focus to its offerings for the 2000 Christmas gift-buying market.

One of Fujifilm's principal consumer digital camera offerings in Canada is the FinePix 40i model. With an estimated street price of about $999, the FinePix 40i can capture both high resolution (up to 4.3 megapixels) digital still images, or up to 90 seconds of AVI digital video, with sound.

As well, the 40i can store downloaded MP3 audio files, and play them back with the help of a tethered (cable-connected) remote control. The remote can be used for snapping and viewing pictures and zoom control, as well as MP3 playback.

Like other Fujifilm digital cameras, the 40i comes with a USB port for fast, simple image transfer, and the camera supports removable SmartMedia memory cards. It also comes bundled with Adobe ActiveShare image editing software, and RealJukebox MP3/digital audio software.

Other cameras in Fujifilm Canada's holiday lineup include:

- FinePix 4900 ZOOM 4.3 megapixel digital camera, with 6x optical zoom, for about $1,499
- FinePix 1300, 1.3 megapixel, entry-level camera, for about $445
- FinePix 1200, 2.1 megapixel mid range camera with 8 MB Smart Media removable memory card, for about $799, plus a $100 mail-in rebate

—CanadaComputes.com

Honeywell ships wireless Net device

MINNEAPOLIS, Minn.—Home-gadget maker Honeywell International Inc. (http://www.honeywell.com/yourhome/) has joined the wave of portable wireless developers with the release of its WebPad Internet access device.

The company's keyboard-optional WebPad, which is about the size of an Etch A Sketch, can be held like a book, or propped on its

Continued on page 14

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What's New

Continued from page 12

own vertical stand. Users can surf wirelessly as long as the device is within 45 m (150 ft.) of the base station that links the device to the Internet.

Honeywell said that a single base station—which is linked to an always-on Internet source such as a cable or DSL service—can serve up to eight WebPads. The wireless link to the base station supports data transfer speeds of up to 1.5 Mbps, fast enough for typical cable modem or DSL Internet connections.

The US$995 WebPad is based on the Geode WebPad reference design from National Semiconductor Corp. Other companies that have announced plans to launch Geode WebPad based products include U.S. based ViewSonic and Asian PC manufacturers Quanta and Preview.

Honeywell said its WebPad weighs less than 1.35 kg (3 lb.) and measures 2.54 cm (1 in.) thick. The machine uses Microsoft's Windows CE operating system and comes with Internet Explorer Web browser. Users can navigate and enter information using the 10 inch touch-screen display or attach a keyboard or mouse to the device's USB port.

Honeywell said the device also works with its home-automation technology, allowing the WebPad to become a control centre for setting room temperatures, lighting and security devices.

—*Newsbytes*

3Com unveils Audrey

SANTA CLARA, Calif.—Also entering the crowded Internet appliance marketplace recently, was 3Com Corp., with a new product called Audrey.

Eric Benhamou, 3Com's chairman and chief executive officer said: "Audrey marks 3Com's entrance into a virtually untapped high growth consumer market and represents 3Com's strategic focus on providing radical simplicity to the consumer."

Audrey is the first in 3Com's planned Ergo line of what it calls "lifestyle-centered connected appliances." The company said Audrey offers one-touch access to email, Internet channels, a household calendar, address book and Palm HotSync technology. Audrey works with multiple Internet service providers (ISPs) and, according to 3Com, allows users information access, communication and organization.

The device comes with pre-selected Internet content that can be accessed by turning a channel selector knob. Audrey has five basic channels built in: news comes from ABCNEWS.com; weather comes from AccuWeather.com; sports is delivered by ESPN.com, stock quotes and other financial news can be found on CBSMarketWatch.com, and entertainment info is available on Mr Showbiz.

The basic channels can be customized to bring specialized information like local weather or specific stock quotes. Users will also be able to select additional channels that offer specific e-commerce opportunities.

According to 3Com, email on Audrey will be quick and easy and accessible by pressing the Mail button on the screen. Messages can be sent by typing, speaking, or by writing on the screen with a stylus.

Audrey comes with a combined household calendar function that can be synchronized with two different Palm datebooks. For those who live in areas where weather makes an impact on planning, Audrey can generate daily weather forecasts right on the calendar according to 3Com.

The new device is available for purchase at a price of US$499, according to 3Com. Audrey can be ordered via the Web at http://www.3com.com/ergo

—*Newsbytes*

Lexmark Z12 supports WebTV

Lexmark Canada Inc. (http://www.lexmark.ca) has announced that its Lexmark Z12 Colour Jetprinter is now compatible with Microsoft's WebTV platform. The company

Continued on page 22

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On Board 64 Bit 3D Graphics Accelerator
On Board AC-97 Sound Card
On Board 10/100BaseT LAN Card
52x Speed UDMA CD-ROM,Speakers
15" Non-Int Low Rad. SVGA Monitor
AOpen MX300C Slim Desktop/Tower Case
107-keys Win98 Keyboard,PS/2 Mouse
1 Year Parts & Service Warranty

CELERON

600MHz w/128KB L2 .... $ 810
633MHz w/128KB L2 .... $ 815
667MHz w/128KB L2 .... $ 825
700MHz w/128KB L2 .... $ 835

AMD SuperStation

MicroStar K7T Pro Athlon/Duron VIA 133 Main Board
128MB 168 Pin High Performance SDRAM (PC100MHz)
1.44MB Floppy Drive
15GB Ultra DMA-66 7200RMP Hard Drive
Ultra DMA-66 IDE Controller
2 x 16550 Serial, 1 Parallel & 2xUSB Port
AGP TNT Vanta 3D Card w/16MB
On Board AC-97 2.0 3D Audio Sound
52x Speed UDMA CD-ROM,Speakers
Samtron 17" .27mmDP NI SVGA Monitor
ATX Mid Tower Case with CSA Power Supply
107-keys Win98 Keyboard, PS/2 Mouse
1 Year Parts & Service Warranty

17"

AMD Duron

Duron - 650MHz	$ 1,005
Duron - 700MHz	$ 1,025
Duron - 750MHz	$ 1,050
Duron - 800MHz	$ 1,110

Video Graphics Adapters

ATI All-in-Wonder 128 Pro AGP Card 16MB/32MB	$216/277
ATI Xpert 98 8MB/Xpert 2000 32MB AGP Card	$59/100
ATI Rage Fury Pro (VIVO) 32MB/Fury Maxx 64MB AGP	$154/180
ATI Radeon AGP 32MB/64MB DDR	$293/440
ATI Radeon All-in-Wonder AGP Card 32MB	$425.00
ATI TV Wonder VE NTSC/TV Wonder Card (NTSC)	$87/165
ASUS V6600 nVIDIA GeForce 256 Pure/Deluxe 32MB	$247/380
ASUS V6800 nVIDIA GeForce 256 Pure/Deluxe DDR	$294/340
ASUS V6800 nVIDIA GeForce 256 64MB DDR Pure	$429.00
ASUS V7100 nVIDIA GeForce 2 MX AGP 32MB Pure	$220.00
ASUS V7700 nVIDIA GeForce 2 GTS 32MB/64MB DDR Pure	$410/525
ASUS V7700 nVIDIA GeForce 2 64MB DDR Deluxe	$885.00
Guillemot Maxi Gamer 3D Prophet 32MB DDR	$400.00
Guillemot Hercules 3D Prophet 2 GTS 64MB DDR-TV	$628.00
Matrox Millennium G450 16MB SDRAM	$125.00
Matrox Millennium G450 16/32MB DDR Dual Display	$150/204
nVIDIA TNT Vanta 16MB/TNT2 M64 32MB AGP Card	$70/88
nVIDIA TNT2 Pro 32MB/GeForce 2 MX 32MB TV-Out	$118/183
PowerColor Voodoo 3000/3500 16MB AGP	$118/185

Monit

AOC 15" NI L/H(1024x768 .28mmDP)	$185.00
Envision 31800 19" NI L/R(1600x1200 .26mmDP)	$375.00
Mag 786FD 17" .24mmDP/800V 19" .26mmDP	$305/890
NEC A500/A700 15"/17" .28mmDP DiaTron	$225/310
NEC FE700/700M 17" .25mmDP Flat Display	$305/450
Panasonic E70i 17" (1280x1024 .27mmDP)	$320.00
Panasonic S50/S70 15"/17" (1280x1024 .27mmDP)	$270/365
Panasonic P700 19" (1600x1200 .25mmDP) FD	$700.00
Panasonic P110 21" (1600x1440 .26mmDP)	$1170.00
Proview FX 7F 17" NI L/R 1280x1024 .27mmDP	$235.00

Sony E100 15" NI L/R(1280x1024 .24mmDP) FD	$325.00
Sony E200 17" NI L/R(1280x1024 .24mmDP) FD	$530.00
Sony F400 19" NI L/R (1600x1440 .24mmDP) FD	$745.00
Sony E500 21" NI L/R(1800x1530 .24mmDP) FD	$1400.00
Sony G200 17" NI L/R(1600x1200 .24mmDP) FD	$655.00
Samsung 550S 15" NI L/R(1024x768 .28mmDP)	$190.00
Samsung 955P 19" NI L/R(1600x1200 .20mmDP)	$485.00

HD/FD Controllers

ISA NIC HD/FD Controller with I/O UART 16550	[illegible]
Adaptec 1505/2906 SCSI CD ROM Controller	$97/75
Adaptec 2910C/2930U PCI SCSI Controller	$115/130
Adaptec 29160/39160 PCI Ultra 160 SCSI	$340/730
Adaptec 2100S/3200S RAID Ultra 160 SCSI	$878/1101
Promise Ultra66/Fastrak 66 PCI Controller	$32/102
Promise Ultra100/Ultra100 RAID PCI Controller	$47/145
Promise Ultra66 RAID 64Bit 100 RAID 5 Card	[illegible]

Keyboards & Cases

[illegible]	$57.10
Monterey Windows 98/Internet Keyboard	$10.10
Logitech Deluxe/Internet Keyboard	$23/30
Logitech Cordless Touch Keyboard	$74.00
Logitech Cordless Freedom/Desktop Pro Keyboard	$123/155
Microsoft Natural Elite/Internet Keyboard	$25/28
17/19" ATX Mid Size Tower w/ CSA Power Supply	$85/85
ATX Tower with 250W CSA Power Supply	[illegible]

Floppy & Hard Drives

Panasonic 1.44MB Floppy Drive	[illegible]
Panasonic LS-120 120MB Floppy Drive	$88.00
30GB/40GB/60GB/75GB 7200RPM HDD	[illegible]
15GB/20GB/30GB/40GB 5400RPM HDD	[illegible]

Motherboards

Intel L440GX Dual Pentium III Slot 1 Server Board	$750.00
Intel STL2 Dual Pentium III PGA Server Board	$960.00
Abit SE6 815E Socket 370 Board ATA100	$225.00
Abit KA7 100 KX133 ATA-100 Athlon Board	$256.00
Abit KT7/KT7-RAID KT133 Socket A Board	$227/266
Abit VL6 VIA Apollo Pro 133 Pentium III Board w/Sound	$133.00
AOpen MX36 815E Socket 370 Board w/Sound/LAN	$199.00
ASUS CUBL2 815E Socket 370 Board ATA100	$236.00
ASUS P2B-DS 440BX Dual CPU Ultra2SCSI Board	$878.00
ASUS P3V4X/CUV4X VIA Apollo Pro 133 Board	$160/180
ASUS A7V VIA KT133 Micro-A Athlon/Duron Board	$234.00
ASUS K7M/K7V Slot A Athlon Board	$170/170
MicroStar 815E Pro Socket 370 ATA100 Board	$177.00
MicroStar MS-6309 VIA 133 Pentium III Board	$142.00
MicroStar MS-6840 Pro Dual Socket 370 Board	$243.00
MicroStar K7T Pro VIA KT133 Socket A/ATA100 Board	$182/200

MultiMedia

AOpen 12x10x32 Int IDE CDRW	$215.00
Creative Labs Sound Blaster Ensoniq PCI/PCI 128	$24/40
Creative Labs SB Live! MP3+ & 5X/Gamer 5.1	$134.00
Creative Labs SB Live! Platinum & Live Value	$272/100
AOpen 52X/Creative Labs 52X IDE CD-ROM Drive	$58/157
Panasonic 8x4x32/Plexwriter 8x8x32 Int IDE CDRW	$198/210
Panasonic 8x/12x IDE DVD Drive	$132/155
Pioneer 16x IDE DVD Drive	$170.00
Plextor 8x4x32/12x10x32 Int IDE CDRW	$278/328
Plextor 12x4x32 Int/Ext SCSI CDRW	$510/640
Toshiba 40X SCSI CD-ROM Drive	$112.00
Yamaha 8x8x24 Int IDE/SCSI CDRW	$275/295
Yamaha 8x16 Int IDE/SCSI CDRW	[illegible]

Modem & Misc

AOpen 56K v.90 ISA/PCI Fax Modem	$79/28
Genius NetMouse with Magic-Button	$12.00
Logitech FirstMouse+ OEM/Cordless Wheel	$13/53
Logitech Wheel Mouse/MouseMan Optical	$42/66
Logitech Cordless Wheel Mouse Special Ed	$50.00
Logitech TrackMan Marble Wheel/Marble FX	$56/74
Logitech TrackMan Live Cordless	$175.00
Microsoft Basic Mouse/Cordless Wheel Mouse	$17/50
Microsoft Trackball Mouse/IntelliMouse	$15/20
Microsoft Wheel Mouse/IntelliMouse Optical	$30/65
Microsoft Compatible Mouse PS/2	$8.00
US Robotics 56K v.90 Win Int Fax Modem	$48/176
US Robotics 56K v.90 USB Pro Ext Modem	$205.00
Zoltrix 56K v.90 External Fax Modem	$72.00

Printer

Canon BJC-1000/BJC-80 Color Inkjet	[illegible]
Canon BJC-3000/6100 Color Inkjet	$188/189
Canon BJC-8200 Color Inkjet	$485.00
Epson Stylus 580/777 Color Inkjet	$80/188
Epson Stylus 860 Inkjet 2880x720dpi	$228.00
Epson Stylus 980/1280 Color Inkjet 2880dpi	$310/859
Epson Stylus 1160 13"x44" Color Inkjet	$440.00
HP 640C/840C Deskjet Color Printer	$188/282
HP 930C/950C Deskjet Color Printer	$305/380
HP 970Cxi/990Cxi Deskjet Color Printer	[illegible]
HP P1000/P1100 PhotoSmart Color Printer	$430/555
HP 1220C/Xi/2000C Deskjet Color Printer	$700/1700
HP 2200 Business Inkjet Printer	$715.00
HP 2250/2250TN Business Inkjet Printer	$1000/1430
HP 1100/1100A Laserjet 600 dpi 8 ppm	[illegible]
HP 2100/2100M Laserjet 1200 dpi 10 ppm	[illegible]

Authorized Reseller
COMPAQ
IBM Business Partner
HEWLETT PACKARD Authorized Retailer
Intel Processor Dealer
Cisco Systems
Acer
3Com Networking Partners
SONY

MicroConcept

102 - 1245 West Broadway
Vancouver, B.C. V6H 1G7

Pentium III~Game Blaster

Intel Pentium III Processor/133MHz Bus
Asus P3V4X/CUV4X VIA Apollo Pro 133A ATX Board
128MB 168 Pin SDRAM [PC133MHz]
1.44MB Floppy Drive
20GB Ultra DMA-66 5400RPM IDE Hard Drive
Ultra DMA66 Cont. w/2x16550 Serial,1xBi Directional Parallel,2xUSB Port
AGP 3dfx Voodoo 3000 Graphics Card with 16MB
Creative Labs Live! Value Card-Environmental Audio
52x Speed UDMA CD-ROM
MLI-480 Sub-woofer Speaker
Samsung 750S 17" .27mm DP NI SVGA Monitor
ATX Mid-Tower Case with CSA Power Supply
107 keys Windows 98 Keyboard,PS/2 Mouse
2 Year Parts & Service Warranty

PIII 667MHz 256KB L2 ...	$1,410
PIII 733MHz 256KB L2 ...	$1,450
PIII 800MHz 256KB L2 ...	$1,465
PIII 866MHz 256KB L2 ..	$1,550
PIII 933MHz 256KB L2 ...	$1,725

Ultimate Power Station

Intel Pentium III Processor/133MHz Bus
Asus CUV4X VIA Apollo Pro 133A ATX Board
128MB 168 Pin SDRAM [PC133MHz]
1.44MB Floppy Drive
20GB Ultra DMA 66 7200RPM IDE Hard Drive
Ultra DMA66 Cont. w/2x16550 Serial,1xBi Directional Parallel,4xUSB Port
AGP nVidia GeForce 2 MX w/32MB TV Out
Creative Labs Live! Value Card-Environmental Audio
52x Speed UDMA CD-ROM
Altec Lansing 45 2 Sub woofer Speaker
Samsung 753DF 17" .20mmDF DynaFlat Monitor
ATX Mid Tower Case with CSA Power Supply
107 keys Windows 98 Keyboard,PS/2 Mouse
2 Year Parts & Service Warranty

PIII 733MHz 256KB L2...	$1,640
PIII 800MHz 256KB L2...	$1,655
PIII 866MHz 256KB L2...	$1,740
PIII 933MHz 256KB L2...	$1,915
PIII 1GHz 256KB L2	$2,150

MEMORY SALE!

LIFETIME WARRANTY

16MB 60ns 72 Pin EDO SIMM	[illegible]
32MB 60ns 72-Pin EDO SIMM	[illegible]
32MB SDRAM PC-100 compliant	[illegible]
64MB SDRAM PC-100 compliant	[illegible]
128MB SDRAM PC-100 compliant	[illegible]
256MB SDRAM PC-100 compliant	[illegible]
128MB SDRAM PC-133 compliant	[illegible]
256MB SDRAM PC-133 compliant	[illegible]
128MB ECC SDRAM PC-100 compliant	[illegible]
256MB ECC SDRAM PC-100 compliant	[illegible]
128MB ECC SDRAM PC-133 compliant	[illegible]
256MB ECC SDRAM PC-133 compliant	[illegible]
128MB RAMBUS [illegible]	[illegible]

BASF/Verbatim/Sony CDR

BASF CDR [illegible]
SONY CDR [illegible]
BASF 80min CDR- $1.28
BASF CDRW [illegible]

Iomega Zip

100MB Zip Disk $12.00

56k Modem

V.90 Internal Fax Voice Modem $21.00

MICROCONCEPT NETWORK PRODUCTS FOR LESS !!

Novell NetWare

NetWare v3.2

NetWare v3.2 5/10 User	[illegible]
NetWare v3.2 25/50 User	[illegible]
NetWare v3.2 Enhancement Pack	[illegible]

IntraNetWare v5.1

NetWare 5.1 Server Plus 5 User Lic.	$1225
NetWare 5.1 5/10 Additive Lic. Only	[illegible]
NetWare 5.1 25/50 Additive Lic. Only	[illegible]

Netware Small Business Suite v5

Netware Small Business v5 Server w/5 user	$1590
[illegible]	[illegible]

Microsoft Server

Windows NT Server v4 5 CD 5 Client/10 Client	$1095/1080
Windows NT v4 5 Client Parallel Lic.	[illegible]
Windows NT Workstation 4.0 CD	$430
Windows 2000 Server 5 Clients/10 Clients Lic.	$1380/1615
Windows 2000 Professional	$431
BackOffice Small Business Server v4.5 w/5 Clients	[illegible]
BackOffice Server v4.5 w/5 Clients	[illegible]
Microsoft Exchange 2000 Server with Clients Lic.	$1215
Microsoft SQL Server V7.0 with Clients Lic.	[illegible]
Microsoft SMS version 2.0 w/ 10 Clients Lic.	[illegible]
Microsoft SQL Server 2000 w/ 5 Clients Lic.	[illegible]
Microsoft Windows 2000 Terminal Server w/5 Clients	[illegible]

Network Printers

Optra M410 LEXMARK
1200dpi Image Quality
$1020.00

HP 4050 Laserjet 1200dpi 17ppm	[illegible]
HP 4050N Laserjet 1200dpi 17ppm 16MB Network	[illegible]
HP 4050TN Laserjet 1200 dpi 17ppm 16MB Network	[illegible]
HP 5000 Laserjet 1200dpi 16ppm 11x17"	$2230
HP 5000N Laserjet 1200dpi 16ppm 11x17" Network	[illegible]
HP 5000GN Laserjet 1200dpi Graphics intensive	[illegible]
HP 8100 Laserjet 1200dpi 32ppm	[illegible]
HP 8100N Laserjet 1200dpi 32ppm Network	$4450
HP 8100DN Laserjet 1200dpi 32ppm Duplexer	[illegible]
HP 8500 Color Laserjet 600dpi (Ret2400) 32MB	[illegible]
HP 4500N Color Laserjet 600dpi 64MB Network	$4430
HP 8550 Color Laserjet 600dpi 12x18" 32MB	[illegible]
HP4550N Color Laserjet 600dpi 32MB Network	[illegible]
Lexmark Optra E312L 10ppm 2MB	[illegible]
Lexmark Optra E312 10ppm 8MB USB	[illegible]
Lexmark Optra M410n 12ppm 4MB USB	[illegible]
Lexmark Optra M412 17ppm 8MB USB	[illegible]
Lexmark Optra M412n 17ppm 8MB 10/100BaseTx	[illegible]
Lexmark Optra T610 18ppm 8MB Parallel	[illegible]
Lexmark Optra T610n 18ppm 8MB 10/100BaseTx	[illegible]
Lexmark Optra T612 20ppm 8MB Parallel & Serial	[illegible]
Lexmark Optra T612n 20ppm 16MB 10/100BaseTx	[illegible]
Lexmark Optra T614 25ppm 8MB Parallel	$1700
Lexmark Optra T614n 25ppm 16MB 10/100BaseTx	[illegible]
Lexmark Optra T616 35ppm 16MB Parallel	[illegible]
Lexmark Optra T616n 35ppm 12MB 10/100BaseTx	[illegible]
Lexmark Optra W810 35ppm 16MB 11x17" Parallel	[illegible]
Lexmark Optra W810n 35ppm 16MB 11x17" Network	[illegible]
Lexmark Optra C710 3ppm 32MB 1200dpi	[illegible]
Lexmark Optra C710N 3ppm 32MB 1200dpi Network	[illegible]
Lexmark Optra Color 1200 12ppm 1200dpi 11x17"	[illegible]
[illegible]	[illegible]

Tape / CD ROM Drive

HP Colorado 8GB Int/Ext Backup Drive (no media)	[illegible]
HP Colorado 14GB Int/Ext Backup Drive (no media)	[illegible]
HP Colorado 20GB Int/Ext Travan Drive (no media)	[illegible]
Hewlett Packard SureStore 8GB Int/Ext DAT Drive	[illegible]
Hewlett Packard SureStore 24GB Int/Ext DAT Drive	[illegible]
Hewlett Packard SureStore 40GB Int/Ext DDS-4 DAT	[illegible]
Hewlett Packard SureStore DLT 40/80 SCSI Drive	[illegible]
[illegible]	[illegible]
Onstream 30GB IDE/SCSI Int. Drive Echo SW Incl.	[illegible]
Onstream 50GB SCSI Int. Drive Echo SW Incl.	[illegible]
Quantum DLT 4000 40GB Int/Ext SCSI Drive	[illegible]
Quantum DLT 8000 80GB Int/Ext SCSI Drive	[illegible]
Seagate Scorpion 8GB DAT Int/Ext Drive	[illegible]
Seagate Scorpion 24GB DAT Int/Ext Drive	[illegible]
Seagate Scorpion 96GB DAT Int/Ext Drive	[illegible]
Seagate Scorpion 240GB DAT Int/Ext SCSI Drive	[illegible]
Seagate 20GB TR-5 IDE/SCSI Tape Backup Drive	[illegible]
Seagate TapeStore 20GB IDE/SCSI Drive	[illegible]
Seagate 20GB TR5 External USB Drive	[illegible]
Sony SDT 7000 Int/Ext 4-8GB DAT	[illegible]
Sony SDT 9000 Int/Ext 24GB DAT	[illegible]
Sony SDT 11000 Int/Ext 40GB DDS-4 DAT SCSI	[illegible]
Sony AIT 200GB Int/Ext Autoloader	[illegible]
Sony AIT 400GB Ext Autoloader	[illegible]

Power Protection

APC BackUPS 300
$126.00

American Power

BackUPS 300/500M/650M	[illegible]
BackUPS Pro 280/650/420S	[illegible]
BackUPS Pro 500/650S	[illegible]
BackUPS Pro 1000/1400	[illegible]
SmartUPS SU420/SU620NET	[illegible]
SmartUPS SU700/SU1000/SU1400NET	[illegible]
SmartUPS SU2200/SU3000/5000NET	[illegible]
Back UPS Office BF250/BF500	[illegible]
Matrix 3000VA/5000VA (Modular UPS)	[illegible]
SmartCELL for Matrix 3000/5000	[illegible]
Line Conditioner LR600/LR1250	[illegible]
Personal SurgeArrest 7/7 Outlets with Tel	[illegible]
Professional SurgeArrest 7/7 Outlets with Tel	[illegible]
Professional SurgeArrest 8/7 Outlets with Tel	[illegible]
Network SurgeArrest 7/7 Outlets with Tel	[illegible]
Notebook Surge Protector	[illegible]
Battery for Compaq/IBM/Toshiba Notebook NiMH/Li-ion	[illegible]

Cables & Jacks

Cable Tester
$80.00

Twisted Pair

Assembly Cat 5 10/100BaseT Cable 10/15/25 ft	[illegible]
Assembly Cat 5 10/100BaseT Cable 50/75/100 ft	[illegible]
Cable Cat 5 10/100BaseT Cable per ft	[illegible]
Cable Cat 5 10/100BaseT Cable per 1000 ft	[illegible]
Connector RJ45M	[illegible]
Tool RJ45 Crimping	[illegible]
Multi-Network Cable Tester	[illegible]

Coaxial

Assembly RG58A/U Thin Coax 25/50/100 ft	$15/23/35
Cable RG58A/U Bulk per ft	[illegible]
Cable RG58A/U Bulk per 1000 ft	[illegible]
Connector BNC "T" /Terminator 52 ohm	[illegible]
Tool BNC Crimping	[illegible]

10BaseT/2 Adapters

3Com 3C1206 10BaseT USB Network Interface	[illegible]
AOpen PCI Ethernet 10BaseT	[illegible]
D-Link DE-220PCT ISA/DE-530CT+ PCI Combo	$23/25
Intel PCLA8210B ISA EtherExpress Pro 10+ Combo	[illegible]
SMC 1208BT PCI EzCard Combo	[illegible]
SMC 8416BT ISA/8432BT PCI EtherEZ Combo	[illegible]

Print Servers/USB Hub

[illegible]	[illegible]
HP JetDirect J2591B 10X 10BaseT Ext Print Server	[illegible]
HP JetDirect J4100A 400N 10/100BaseT Print Server	[illegible]
HP JetDirect J3263A 300X 10/100BaseT Ext Print Server	[illegible]
HP JetDirect J3265A 500X 10/100BaseT 3pt Print Server	[illegible]
HP JetDirect J3110A 600N RJ45 10BaseT	[illegible]
HP JetDirect J4169A 610N 10/100BaseT	[illegible]
HP JetDirect J4128A USB Connectivity Card	[illegible]
Intel NetportExpress Pro Ext. Printer Server PCLA2181B	[illegible]
Intel NetportExpress 10/100 Ext. Printer Server 1 Port	[illegible]
Intel NetportExpress 10/100 Ext. Printer Server 3 Port	[illegible]
Intel InBusiness Print Station SP310TX2US	[illegible]
Netgear PS110 10/100 Print Server	[illegible]
Linksys USBHUB04 SOHO USB Hub 2 Port	[illegible]
Xircom Portgear USB Hub 8 Port/7 Port	[illegible]

PCMCIA Adapters

D-Link DE-660CT PCMCIA Combo NE2000 Compatible	[illegible]
Xircom Realport 10/100 Ethernet + 56K v.90 Modem	[illegible]
Xircom Realport RM56V1 56K v.90 Modem	[illegible]
Xircom Realport 2 R2BM56WW Win Shift 56K Modem	[illegible]
Xircom Realport 2 R2WD Wireless Data (Ericsson/Nokia)	[illegible]
Xircom Realport 2 R2BM56WG 56K WinGlobal Modem	[illegible]
Xircom Realport 2 R2BE 10/100 Ethernet	[illegible]

10 BaseT Hubs

3Com 3C16441 SuperStack 1 Entry Hub 12 Port	[illegible]
3Com 3C16444 SuperStack 1 Entry Hub 24 Port	[illegible]
3Com 3C16405 SuperStack II PSH Hub 40 12 Port	[illegible]
3Com 3C16406 SuperStack II PSH Hub 40 24 Port	[illegible]
3Com 3C16450 SuperStack II PSH Hub 80 24 Port	[illegible]
3Com 3C16670A SuperStack 1 Hub 10 12 Port	[illegible]
3Com 3C16671A SuperStack 1 Hub 10 24 Port	[illegible]
3Com 3C16610 SuperStack 1 Dual Speed Hub 12 Port	[illegible]
3Com 3C16611 SuperStack II Dual Speed Hub 24 Port	[illegible]
3Com 3C16700A OfficeConnect 8/TPO	[illegible]
3Com 3C16701A OfficeConnect 8/TPC	[illegible]
3Com 3C16702A OfficeConnect 16/TPC	[illegible]
3Com 3C16704A OfficeConnect 4/TPO	[illegible]
3Com 3C16710 OfficeConnect 8/TPM	[illegible]
AOpen SOHO 5+ 5 Port/536 8 Port Hub	[illegible]
D-Link DE-805 TP/C 2 Port Hub	[illegible]
D-Link DE-809TC 8 Port/DE-812TP+ 12 Port Hub	[illegible]
D-Link DE-816TP 16 Port/DE-824TP 24 Port Hub	[illegible]
Intel InBusiness SH10T5 5 Port/SH10T8US 8 Port Hub	[illegible]
Intel InBusiness SH10TBR 2 Port Hub (with case)	[illegible]
Intel InBusiness SR10TPSUS Internet Station	[illegible]
Netgear EN104TPNA/EN104NA 4 Port Hub	[illegible]
Netgear EN108TP 8 Port Hub	[illegible]
Netgear EN108TPNA/EN108NA 8 Port Hub	[illegible]
Netgear EN116NA 16 Port Hub	[illegible]
SMC 3605T-EZ 5 Port/SMC 3608T EZ 8 Port Hub	[illegible]
[illegible]	[illegible]

Home Network

[illegible]	[illegible]
3Com 3CP2020 HomeConnect Ext Cable Modem	[illegible]
D-Link DHN 910 10MB Home Phoneline Network Kit	[illegible]
Intel AnyPoint Home Network PC Card	[illegible]
Intel AnyPoint USB Network Card w AnyPoint Connect	[illegible]
Linksys Wireless Network Access Point	[illegible]
Linksys Wireless Network PC Card	[illegible]

Switches

3Com 3C16733 OfficeConnect Switch 10/100	[illegible]
3Com 3C16734 OfficeConnect Switch 10/100	[illegible]
3Com 3C16981 SuperStack II 10 Switch	[illegible]
3Com 3C16980 SuperStack II 10 Switch	[illegible]
3Com 3C16951 SuperStack II 100 Switch	[illegible]
3Com 3C16950 SuperStack II 100 Switch	[illegible]
3Com 3C39024 SuperStack II 100 Switch	[illegible]
CISCO Catalyst 2912-XL-A 10/100 Switch	[illegible]
CISCO Catalyst 2924-XL-A 10/100 Switch	[illegible]
D-Link DSS-5+ 10/100 5 NWay Desktop Switch	[illegible]
D-Link DSS-8+ 10/100 8 NWay Desktop Switch	[illegible]
D-Link DSS-16+ 10/100 16 NWay Rackmount Switch	[illegible]
D-Link DSS-24 10/100 24 Port Switch	[illegible]
HP J4120A ProCurve 1600M 16 Port 10/100	[illegible]
HP J4121A ProCurve 4000M 40 Port 10/100	[illegible]
[illegible]	[illegible]
Intel Express 510T 10/100 Standalone Switch	[illegible]
Intel Express 410T 10/100 Standalone Switch	[illegible]
Intel Express 460T 10/100 Standalone Switch	[illegible]
Intel Express 480T 10/100 Standalone Switch	[illegible]
Intel Express 520T 10/100 Scalable Switch	[illegible]
Intel NetStructure 470T Switch 6 1000BaseT	[illegible]
Intel NetStructure 480T Routing Server 12	[illegible]
Netgear FS108 10/100BaseT 8 Port Switch	[illegible]
Netgear FS108NA 8 10/100BaseT Port Switch	[illegible]

100/1000 Mbps Systems

3Com 3C905B TX PCI
$62.00

3Com 3C905L TX-M FastEtherLink PC Management	[illegible]
3Com 3C905B-COMBO Fast EtherLink 10/100 Combo	[illegible]
3Com 3CR990 TX 95 EtherLink 10/100 PCI NT Encryption	[illegible]
3Com 3CR990 TX 97 EtherLink 10/100 PCI 168 bit Encryption	[illegible]
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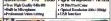

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73.4GB	ST173404LW	5.8ms	4MB	10000	ULTRA 160	$1705
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i1260	Cel550	64MB	6GB	24X	13.3 TFT	56K	$1,825
i1251u	Cel600	64MB	10GB	DVD	12.1 TFT	56K	$1,810
i1340	Cel500	64MB	6.0GB	24X	12.1 TFT	Combo	$1,885
i1370	Cel550	64MB	12GB	24X	13.3 TFT	Combo	$2,340
i1381u	Cel600	64MB	10GB	24X	12.1 TFT	Combo	$2,200
i1391u	P3-650	64MB	20GB	24X	13.3 TFT	Combo	$2,715
A21e	Cel600	64MB	10GB	24X	15 TFT	56K	$3,085
A20m	Cel550	64MB	12GB	24X	15 TFT	56K	$3,065
A20m	P3-500	64MB	6.0GB	24X	12.1 TFT	56K	$3,715
A20m	P3-600	64MB	12GB	DVD	14.1 TFT	56K	$3,600
A20m	P3-700	64MB	10GB	24X	14.1 TFT	56K	$3,555
A21m	P3-700	64MB	10GB	DVD	14.1 TFT	56K	$3,460
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A20p	P3-750	128MB	20GB	DVD	15 TFT	56K	$5,145
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T20	P3-650	128MB	6.0GB	24X	13.3 TFT	56K	$3,740
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341TV	P3-500	64MB	8GB	DVD	12.1 TFT	$2,670
343TV	P3-500	128MB	12GB	DVD	12.1 TFT	$2,965
521TE	P3-500	64MB	8GB	24X	13.3 TFT	$2,375
521TXV	P3-600	64MB	6GB	DVD	14.1 TFT	$2,820
524TXV	P3-650	64MB	12GB	DVD	14.1 TFT	$3,115
502TER	P3-650	128MB	12GB	CDR	13.3 TFT	$3,335
503TER	P3-700	128MB	12GB	CDR	13.3 TFT	$4,020
735TLV	P3-650	128MB	12GB	DVD	15 TFT	$3,740
737TLV	P3-700	128MB	18GB	DVD	15 TFT	$4,060
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3480CT	P3-600	64MB	12GB		11.3 TFT	$3,650
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4280xdvd	P3-600	64MB	12GB	DVD	14.1 TFT	$3,230
4340	P3-650	64MB	12GB	DVD	14.1 TFT	$3,525
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M300	P3-600	64MB	6GB		11.3 TFT	$3,500
M300	P3-600	64MB	6GB		13.3 TFT	$3,645
M300	P3-600	64MB	12GB		12.1 TFT	$3,790
M700	P3-650	64MB	6GB	24X	14.1 TFT	$4,285
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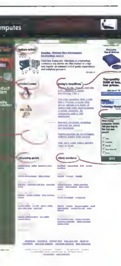

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The ComputerPAPER

What's New

Continued from page 14

says the Z12's ease of use makes it ideal for WebTV—which, effectively, turns television sets into Net appliances with the addition of a set top box (STB)—allowing users to print photos, images and text from the Web. The Z12 currently supports the WebTV Classic Internet and WebTV Plus services and is compatible with most STBs from Philips, RCA, Samsung and Sony.

Lexmark also announced that the Z12 now supports the Mac OS. The Z12 has an estimated retail price of about $100.

—TCP Staff

Netscape says 'Goodbye, Netcenter'

MOUNTAIN VIEW, Calif.—America Online (AOL) subsidiary Netscape Communications has done away with the Netcenter moniker for its home base on the Web, relaunching as Netscape.com and with a new look that coordinates with the interface of its latest browser software.

The company also announced in early October, that it has made available the third and last preview release of what will be Netscape 6. The new browser, expected to be launched in final form before the end of the year, will replace the current version 4.x browser, completely skipping a 5.x release in the race to keep pace with Microsoft's Internet Explorer browser.

Netscape said the new test version of its browser offers more bug fixes than feature enhancements when compared to the second preview release launched in the spring. However, the company said it has streamlined the look and feel of the browser's interface just as it has attempted to better organize its busy Web destination.

"With the release of Netscape 6 PR3 and the redesign of Netscape.com, we are providing a more productive way for professionals to manage their increasingly converging work and personal lives with online tools tailored to their needs," said Jim Martin, senior vice president and general manager of Netscape.

Netscape said its Web site boasts 34 million registered users, many of whom use the site's Web based mail service and gateways to news, online shopping, and stock market information.

New with the launch of the renamed Netscape.com is the Netscape Netbusiness area, which targets small business owners and the home office crowd with a package of information and communication services targeting their industry.

The latest version of the Netscape browser promises better support for adopted HTML and style sheet standards, as well as support for XML. Like the second preview release, the latest version includes better integration of AOL's instant messaging application, AIM.

The Netscape 6 preview releases also added the ability to customize the software's interface with Netscape themes, often referred to as "skins." On the Netscape Web site, true skins fans can find a beta version of a tool from CollabNet Inc. that they can use to create their own themes.

The Netscape 6 preview release can be downloaded at http://www.netscape.com/download.

—Newsbytes

Information age pioneers win Nobels

STOCKHOLM, Sweden—Six scientists who played instrumental roles in bringing about the information revolution were recognized in October with Nobel Prizes in physics and chemistry for their contributions to a series of ever smaller and faster PCs, pocket calculators, cellphones, CD players, improved TV screens and Gameboys.

The physics prize was awarded to Jack Kilby, inventor of the first integrated circuit while at Texas Instruments in 1958, and two physicists whose work contributed to satellite and cellphone technology: Herbert Kraemer of the University of California Santa Barbara and Zhores Alferov of the A.F. Ioffe Physico-Technical Institute in St. Petersburg, Russia, according to an Associated Press report. The chemistry award was won by Alan Heeger, 64, of the University of California Santa Barbara, Alan MacDiarmid, 73, of the University of Pennsylvania and Hideki Shirakawa, 64, of the University of Tsukuba in Japan. The trio worked to modify plastics to conduct electricity. The so called "brilliant plastics" could someday lead to computers as small and light as a wristwatch, AP said.

The prizes, awarded by the Royal Swedish Academy of Sciences, are each worth US$915,000. AP noted that the chemistry prize will be split three ways, while Kilby will receive half of the physics award and his co-winners the rest.

—Newsbytes

Napster for Mac

REDWOOD CITY, Calif.—Napster (http://www.napster.com) is evidently applying to itself the same logic with which it hopes to sway a combative music industry: if you can't beat 'em, join them.

Napster, which produces the legally besieged peer-to-peer file sharing system for the exchange of MP3 music files, announced in late October that it is finally adapting its software to the Macintosh computing platform. To do that, it is working with the producers of an "unofficial" version

Continued on page 24

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Microsoft Optical wheel mouse	$39

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What's New

Continued from page 22

of Napster for the Mac, known until now as "Macster."

It is unclear if the official version, "Napster for the Mac" is simply the same program, as at least one news organization has reported. A Napster spokeswoman who was tracking down that information did not reply by press time.

There are, however, strong suggestions on the Web site of Macster creators Black Hole Media (http://www.blackholemedia.com/) that users will find the similarities rather striking.

"We're proud to let you know that Macster is now the official Napster client for the Mac," the Web site says. "We've been working with Napster to guarantee that this latest release is up to their standards. Now that we've reached that goal, we're changing names and joining the company that is changing the world. We hope you come along with us."

Macster has worked very much like Napster, albeit with several different functions. Like Napster, the Mac program enables users to download MP3 files. But users can listen to the downloaded songs only if they have a Mac compatible music player.

Macster users will find several new features in the new Napster for the Mac program, the Black Hole Media Web site indicates. "First and foremost, Napster for the Mac can now more easily stay up to date with the Windows client," the site says. "We're not completely up to par with our Windows brother, but we'll be there very soon."

The makers also promise better customer service as a result of the Napster partnership.

The Napster for the Mac announcement comes one day after release of a study that indicates Napster software is present in 30 percent of PCs.

Napster's official announcement of the development states that Napster for the Mac users will be treated to some features not available yet for the PC platform.

The Mac version includes new tool bar "flavours" that match the iMac colors, and a history feature that allows users to keep track of their last 10 searches, the company said. Mac users also may customize list views, hide chat windows in the toolbar and use "drag-and-drop" functionality to move music files between folders or the desktop.

—*Newsbytes*

IBM sells workstations at PC prices

In the global computer market, where sales of personal computers in 2000 may top the 130 million mark, the workstation market is a fairly small component, numbering 1.4 to 1.5 million systems.

However, those systems have a disproportionate role in high value industries such as finance, banking and stock trading, engineering, science, Web development, digital video, 3D animation, CAD, and medicine.

IBM is a leader in the workstation market with its R 6000 RISC workstations, and Intel Pentium based personal IntelliStations in competition with Sun Microsystems, Hewlett-Packard and Silicon Graphics, among others.

In mid October, IBM Canada Ltd. announced a new IntelliStation E Pro series of workstations that offers high-powered capabilities at a PC price. Starting at $2,599, the IntelliStation E Pro is available in two basic configurations, a rack-mountable minitower and a compact desktop version. The IntelliStation E Pro is intended to offer workstation power, reliability, connectivity and scalable storage access at a bargain price.

The new E Pro models are based on Pentium III processors with speeds up to 1.05 GHz, graphics options based on Matrox or Nvidia technologies, and comprehensive IBM support and three-year warranties. As well, all IntelliStation customers have online Ask Engineering response team access during business hours.

According to IBM representatives, the combination of IBM's quality reputation, brand name and three-year warranty support, online Ask Engineering, ultra high speed copper based graphics processing hardware, and extremely affordable prices is driving the IntelliStation line into new markets at a rapidly accelerating rate.

IBM's project management capability makes it a safe supplier for customers ranging in size from large (IBM moved a customer's 1,400-workstation installation over a weekend, "with virtually no loss in productivity") to small.

—*CanadaComputes.com*

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Magazine	Issue	Country	Motherboard	Remarks
PC Professionale	Sep 2000	Italy	GA-60XM7E	"Recommended"
CHIP	Sep 2000	Ukraine	GA-7ZX	"Editor's Choice"
PC World	Aug 2000	China	GA-60XM7E	"Best Buy"
ASCII DOS/V	Aug 2000	Japan	GA-60XM7E	"Recommended"
DOS/V Power Report	Aug 2000	Japan	GA-6VX7 1394	"Recommended"
PC World	Aug 2000	Russia	GA-7VX	"Editor's Choice"
OverClocker's Workbench	Jul 2000	WWW	GA-60XM7E	"Recommended"
PC Direkt	Jul 2000	Germany	GA-6VX7 1394	"Recommended"
Computer for All Magazine	Jun 2000	Greece	GA-7VX	"Editor's Choice"
PC Professionale	Jun 2000	Italy	GA-6VX-4X	"Recommended"
Personal Computer World	Jun 2000	UK	GA-6BX7	"Recommended"
Tom's Hardware	May 2000	WWW	GA-6VX7-4X	"Part Winner"
Vr-Hardware	May 2000	WWW	GA-7VX	"Recommended"
HotHardware	May 2000	WWW	GA-6OXC	"Recommended"
Overclocker's Workbench	May 2000	WWW	GA-7VX	"Recommended"
BXBoard	May 2000	WWW	GA-7VX	"Recommended"
ComputerPress Magazine	Apr 2000	Russia	GA-6CX	"Editor's Choice"
PC Magazine	Apr 2000	Turkey	GA-6VX7+	"Editor's Choice"
Hardware Info	Apr 2000	WWW	GA-6VX7-4X	"Bronze Award"
Chip Magazine	Apr 2000	Italy	GA-6CX	"Test Winner"
PC Authority	Apr 2000	Australia	GA-6VXE+	"Value award"
Planet Reboot	Apr 2000	WWW	GA-6F2000	"Recommended"

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Best of B.C.'s electronic media honoured at eWorld

Members of B.C.'s high tech sector were honoured during a dinner at the eWorld Exhibition and Conference held Oct. 24-26 at the Vancouver Convention and Exhibition Centre.

In all, 16 Marshall McLuhan Awards were handed out to recognize the best Web sites, Web site creators, and industry leaders.

Vancouver's reactor8 Communications won two awards: for best end-to-end e-commerce Web site and best new entry on the Internet by a bricks and mortar company for its design of 1010tires.com's site.

"It is about time B.C. received some recognition for a growing, and very important, industry," said eWorld director Sonny Wong. "We are very pleased with the representation from our high tech community and hope that an event like this will increase the profile our region's Web site and e-commerce companies."

According to event representatives, early number crunching puts attendance for the tradeshow portion of the inaugural eWorld at 5,300, which met organizers' targets.

Plans are in the works to hold the next eWorld in the fall of 2001, but the exact location and dates have not been confirmed (see http://www.ewabiex.com/ for updates).

A sold out house was on hand to witness the Marshall McLuhan presentations. The award winners and their categories are:

Best application designed for the Internet
ThoughtShare Communications
http://www.thoughtshare.com
Best e-commerce application Web site
eZnz Canada
http://www.helpovernp.com
Best B2B Web site
My CityMarket.com Inc.
http://www.mycitymarket.com
Best end-to-end e-commerce Web site
reactor8 Communications Inc.
http://www.1010tires.com
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http://www.sportfishing.bc.ca
Industry leadership award for a corporation
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http://www.pmc-sierra.com
Best financial Web site
Columbus Group
http://www.citizensbank.ca
Best non-profit Web site
Funny Communications Group Inc.
http://www.careersconstruction.com
Best education Web site
Brainium.com
http://www.brainium.com
Best tourism Web site
VRX Studios Inc.
http://www.mexvr.com
Industry leadership award for an individual
Norm Francis, Pivotal Corp.
http://www.pivotal.com
Best entertainment Web site
Vycast Entertainment
http://www.suite218.com
Best retail Web site
Bayleaf Software Inc.
http://www.myottedinms.com
Best small business Web site
Ncompass Labs
http://www.ncompasslabs.com
Best new entry on the Internet by a bricks and mortar company: front End
Lone Star Posse Interactive Inc.
http://www.canforpfd.com
Best new entry on the Internet by a bricks and mortar company: overall
reactor8 Communications Inc.
http://www.1010tires.com

—*Megan Johnston*

And the Marshall McLuhan award for industry leadership by an individual goes to... Pivotal Corp. president and chief executive, Norm Francis.

Media Metrix Web usage study: Teens and women gaining ground

August stats for home Internet use in Canada show women and teens spending more time online, with 7.8 billion minutes spent surfing from coast to coast in that month.

Recent figures on Canadian Internet usage were released by Web analyst firm Media Metrix Canada. Highlights of the *Web Use Report for August 2000* Web traffic include the following factoids:

- Over 12 million Canadians used the Web at home in August.
- About 2.7 million of those connected Canucks were French-speaking Canadians, indicating that while Web use by Francophones remains less prevalent than in English-speaking Canada, the gap is closing.
- On average, a connected Canadian home Internet user had active access to the Web at home for 647.8 minutes (10.79 hours) per month in August, up from 558.3 minutes (9.32 hours) in July, and 547.5 (9.125 hours) minutes in June.
- This works out to a total of 7,826,000 minutes (130,433.33 hours) spent online at home by Canadians in August—further justification, if needed, for the description of the Internet as the "world wide waste of time."
- August time online jumped by 1.0 billion minutes over July.
- Teens aged 12-17 are the online champs in terms of time spent surfing, with an average of 754.8 minutes (12.58 hours) per month.
- Next are men, 18 and older, who spent an average of 689.7 minutes (11.49 hours) online at home per month.
- Women 18 and older are only slightly behind, at 667.8 minutes (11.13 hours) per month.
- The biggest story in recent Web trends, the mass migration of Canadian women online, continued as the gap in minutes per month between men and women narrowed from 68.7 minutes in July to 21.5 minutes in August.

—*CanadaComputes.com*

Canada's Top 10

According to the same Media Metrix report, the top 10 Canadian sites, and their unique-visitor numbers for August, were:

Rank	Site	Unique visitors
1	Microsoft's sites	8,785,000
2	AOL Network	8,065,000
3	Yahoo! sites	6,896,000
4	Sympatico-Lycos Inc.	6,090,000
5	Excite@home	4,090,000
6	AltaVista Network	2,305,000
7	About the Human	2,185,000
8	Go Network	2,124,000
9	Real.com Network	1,921,000
10	CANOE	1,912,000

Of the top 10 sites for French-speaking households, seven were the same as those listed for Canada overall (Microsoft, AOL, Sympatico Lycos, Yahoo, CANOE and AltaVista). The other three were InfiniT Network with 1,277,000 Francophone visitors, Multimania.com with 684,000, and Desjardins.com with 653,000.

Handspring adds colour, power to Visor lineup

A month after unveiling the VisorPhone cellphone attachment for its line of PDAs, Handspring Inc. has introduced two new products: the Visor Prism, which has a colour display, and the Visor Platinum, which the company says is the "fastest Palm OS handheld computer on the market today."

Visor Prism

Both new models are powered by Motorola's DragonBall VZ 33 MHz processor. For the 16-bit colour Prism, the result is faster rendering of images for use in multimedia applications such as games, mapping, and video playback, according to Handspring. For the monochrome Platinum, it helps speed up everyday tasks, such as finding data in the address book and memo pad applications, sorting records and accessing and deleting items from the applications launcher.

Both new models come with 8 MB of RAM and include the basic features of the Visor line of products, such as USB support, Mac OS compatibility out of the box, and the Springboard expansion slot. Both are based on a version of Palm OS 3.5 that Handspring has optimized for fast performance, Springboard compatibility, USB connectivity and 16-bit colour support. Handspring says the Prism can run for nearly two weeks of normal use on a single charge of its lithium ion battery. The Platinum runs on two AAA batteries, which provide four to six weeks of performance with standard use.

Both will be available in November from Handspring's online store (http://www.handspring.com): the cobalt blue Prism for US$449, and the metallic silver Platinum for US$299.

Springboard solutions

Also available through the Handspring site, are several new Springboard modules. (The Springboard is the expansion slot—built into all Visors, including the new Platinum and Prism models—that allows users to add memory, software, and hardware to their handheld devices.)

The new modules include a GPS (global positioning system) add-on from GeoDiscovery, an MP3 player from Good Technology, and a colour game pack from Pocket Express. IDEO has announced that, with the addition of a free software update, its eyemodule digital camera now supports Prism and Platinum Visors.

Handspring has announced that will also be selling the innovative GameFace joystick, which turns handhelds into gaming devices. The snap-on accessory is currently exclusive to Visor handhelds, according to the company. The GameFace joystick for Visor standard, Solo, Deluxe and Platinum editions will ship later this year for an estimated US$39.95, and will be bundled with Astraware's Zap!2000 arcade game. The GameFace joystick for Visor Prism is scheduled to ship in early 2001. Handspring says the joystick supports most Palm OS-enabled games.

—*Megan Johnston*

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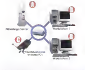

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IBS-1111

Gifts for small business operators

Suggestions for tools to hone that competitive edge

By Curtis Cook

It is the holiday season again—a time for visiting with family and friends, taking a break from work (hopefully), and exchanging gifts. If any of the people on your gift list operate a small business, dream of starting their own business, or even work for a small business, you are in luck—*The Computer Paper*'s Gift Guide can remove some of the guesswork and help to set your mind at ease. The products listed below range from $25 to $2,000, and are taken from the author's personal wish list. Happy Shopping!

RIM BlackBerry 957

Who wouldn't want a BlackBerry for Christmas? This wireless handheld device does just about everything you need a personal digital assistant (PDA) to do, and more. The BlackBerry shines where others lag behind—it operates remotely enabling you to send or receive email from virtually anywhere in North America at any time.

As well, you can remotely retrieve Web-based information like stock quotes, news, phone directories, driving directions, weather reports, and travel information. Similar to other PDAs, the BlackBerry links to a desktop or notebook computer so you don't have to retype information. It comes complete with full email capacity, a search tool to find that missing email, an address book, calendar task list, memo pad, calculator and an alarm.

The BlackBerry has a 160x160 pixel backlit screen rechargeable battery that lasts about one week per charge, 5 MB of flash memory, a QWERTY format keyboard, and a black holster that attaches to a belt. Plus, it has Research In Motion's (RIM's) always-on, always-connected wireless technology Developed by a Canadian company, BlackBerry retails for $795 plus the cost of wireless emailing/messaging accounts.

Both Rogers AT&T and the some members of the mobility group of telcos (for example Bell Mobility) are offering BlackBerry units as part of a service package, the prices for which range from about $30 to $50 per month, plus the cost of the BlackBerry.

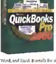
Alternatives: Two way paging is hot this season, and Bell Mobility announced its e-Page service in Ontario and Quebec in October, with plans to extend it to Western Canada by the end of the year.

Among the devices used to access this service is the Motorola PageWriter 2000X, which is about twice as big as a standard pager, but has a small QWERTY keyboard.

Like the BlackBerry this device gives you always on connectivity so you can send and receive pages or email any time as long as you are in the coverage area. It also contains the usual suite of personal organizer applications such as a contact manager task list and calendar. BlackBerry's advantage is that it also allows Internet access.

Quickbooks Pro 2000

What small businessperson could survive in business without up-to-date and accurate books? Bookkeeping may be the dreaded activity of any businessperson and only done out of necessity. QuickBooks Pro 2000 can not only simplify this task, but—because you don't have to fill your head with debits and credits and other accounting jargon—it actually makes bookkeeping more enjoyable. Plus you'll like the amount of time you'll save by using QuickBooks Pro 2000 over previous versions of QuickBooks and some of the other bookkeeping packages.



It handles online banking and bill payment, prepares you for all your taxes, manages payroll, prints postage, and helps you create a Web site, accept online credit card payments, generate direct mailings, create estimates, customize invoices, automate job costing and track employee time. It has password protection for multi user environments and handles all your standard accounting functions and reporting. Plus all the functions are suited for Canadian businesses. Data can be integrated with ACT!, Outlook Word, and Excel. It retails for about $250.

Alternatives: There are two other popular "shrinkwrap" accounting packages available in most retail stores: MYOB and Simply Accounting. While QuickBooks draws its heritage from the immensely popular personal finance software Quicken, MYOB is a scaled down version of a professional accounting package. In Canada, most small businesses operating over the past 10 years have either used or considered using AccPac Simply Accounting which bills itself as "Canada's best selling small business accounting package."

These three will take you to roughly the same place, offering general ledger payroll inventory management, online banking, and more. However they have their own distinctive features too. For example, a consultant we know chose MYOB for its time-billing features.

Among the latest features these packages include support for multiple currencies, more reports, and simplified and more visually attractive interfaces.

Targus world travel connection kit

Do you have someone to buy for who frequents the skies? Try the World Travel Connection Kit from Targus. This kit of 18 phone adapters and five power adapters allows travellers who use notebook computers to connect to phone and power in more than 100 countries. Instead of running around unfamiliar cities looking for obscure pieces of equipment, the recipient of this gift can simply open Targus' travel pouch and organizer and select the necessary adapter. He or she will thank you for many spared headaches. It retails for approximately $150.

Belkin Surge Master

When you are looking to fill a stocking in a hurry, consider the Belkin Surge Master. This surge protector (which should take up most of the space in a stocking) protects against harmful surges and spikes, and spares computer equipment from lightning as well. For the spec minded person, it has a 15 amp circuit breaker, energy dissipation of 485 Joules, a response time of less than a nanosecond, and an electrical rating of 125 V, 15 A, 60 Hz, and 1875 Watts.

For people who care about their computer equipment, the US$10,000 Connected Equipment Warranty and a Lifetime Product Warranty should enable the recipient of this surge protector to sleep a little more soundly during the next thunder and lightning storm. It retails for approximately $25.

Auto/air power adapters

If the person you are buying for never seems to be at home, perhaps he or she would benefit from an adapter that provides power to notebook computers, cell phones, or portable printers in the sky or on land (well, at least in some airplanes and most vehicles). Targus makes a Universal Auto/Air Power Adapter that, in the air, plugs into airline connectors; on the road, plugs into a vehicle's cigarette lighter socket.

If the object of your gift giving is more earthbound, both Belkin and Targus offer auto power adapters that plug into a cigarette lighter socket. Not only do they make working on the go much easier, they provide a much healthier way to use a car cigarette lighter. Marlboro claims, "you've come a long way baby" but with an auto and/or air adapter, you'll go much further. The Targus Universal Auto/Air Power Adapter retails for $170. The Belkin AC Anywhere Auto Adapter sells for $70.

Contact manager

It is often said that the customer is always right but it helps to remember who that customer is. If the person you are buying for has or wants many customers, that might not be as easy as it sounds. ACT! 2000 can help that person remember, not just the customer's name but his or her birthday spouse's name email and Web site addresses, and all the different ways to reach him or her.

The latest version from Sales Logix comes with Dale Carnegie sales training can share calendar information with Microsoft Outlook, has a keyword search to locate an item anywhere in the database, can send email from within ACT!, share expense information with Quicken ExpensAble, and many other new features. Plus ACT! 2000 comes with all the standard contact management functions of earlier editions.

All-in-one printer/copier/fax/scanner

For the small business person working from a home office, the Xerox XE90FX all-in-one printer flatbed copier, fax machine, and scanner can accommodate his or her needs in one place.

Continued on page 40

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Gift ideas for the Linux geek

What can you buy for a dedicated Linux user when almost everything about Linux except the hardware is already free? Not to worry. You just need to get creative.

By Gene Wilburn

Attitude stocking stuffers

The thing that separates a Linux user from those who use lesser operating systems is attitude. So think about gifts that support and nurture that embedded Linux edginess. A great little online emporium for attitude gifts is ThinkGeek (http://www.thinkgeek.com).

Savour a button that reads, "The box said 'install Windows 95 or better' SO I INSTALLED LINUX." Or a sticker that says, "My other computer is a 4,000 node Beowulf cluster." Or some caffeinated Penguin mints. There are also Tux (the Linux Penguin logo) shirts, Tux ties, and Tux hats, not to mention Tux coffee mugs and Tux beer glasses. My personal favourite is a binary clock—binary digits embedded on a CD. Thoughtful gifts for the NMH (No Microsoft Here) person in your life. Prices range from US$4 for the buttons to US$22.95 for a Tux golf shirt.

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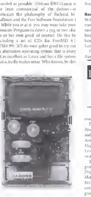
Über distro

Many Linux geeks get fixated on one or two Linux distributions, then spend the rest of their time waging holy war against other distros (when they're not dissing Microsoft). Here's a gift that will help your favourite geek face the reality of Linux multiculturalism. For US$17.95 you can order the Cheapbytes Mondo pack, which includes the following 11 Cheapbytes CDs containing six different distributions:

- Red Hat 6.2 Install
- Red Hat 6.2 Source
- Red Hat 6.2 Documentation
  Installation for Slackware 7.1
- Source for Slackware 7.1
- Mandrake 7.1 Installation #1
- Mandrake 7.1 Installation #2
- OpenLinux 2.3 eServer
- OpenLinux 2.4 eDesktop
- SuSE 6.4 Evaluation
- Packages Galore

The Cheapbytes order site is located at http://www.cheapbytes.com. To make the gift even more "mondo" add in a set of CDs for Debian 2.2 (US$5.99), which will make it as well rounded as possible. (Debian GNU/Linux is the least commercial of the distros—it embraces the philosophy of Richard M. Stallman and the Free Software Foundation.)

While you're at it, you may want take your favourite Penguinista down a peg or two (for his or her own good, of course). Do this by including a set of CDs for FreeBSD 4.1 (US$4.99). It'll do your giftee good to try out an alternative operating system that is every bit as excellent as Linux and has a file system that actually makes sense. Who knows, by this time next year you may be purchasing little BSD devils instead of penguins. Not to worry. ThinkGeek has those too.



Music

During those long programming or admin sessions fuelled by Penguin mints, your Linux guru needs music. No, don't even try to grok his or her taste in music—it might damage your mind. Instead focus on the vehicle for playing the music. In Penguin land the main music format is MP3. How about a spiffy new portable MP3 player to flaunt at the next LUG (Linux User Group) meeting!

The best standard MP3 players for Linux users are the Rio units. Not because Rio is the only good player but because there are good Linux drivers available for the Rio line. Rio players are available at most large electronics stores. The Diamond Rio 500 64 MB player (US$229.99 at ThinkGeek) is a good choice. Linux drivers for this unit are available at http://rio500.sourceforge.net.

CD-R

Even though Windows people use CD-R burners, that doesn't lessen the overall value of the technology. Perfect for downloading the latest Linux or BSD distribution images and burning them to disc. And they hold a gazillion MP3s, not to mention being an inexpensive and good backup medium. Yup, right up there on the most wanted list.

If your Linux guru is running SCSI, then purchase a SCSI CD-R. Otherwise pick a top of the line IDE model such as Hewlett Packard (http://www.hp.ca). Prices will range from $200 to $450 depending on the model.

Books

In the computer business you can never have enough books. The good ones are not just life savers, they're inspirational. Trouble is, every book publisher has jumped on the Linux bandwagon and the market is swamped with Linux titles. What are good gift books?

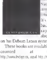
For beginners, the best choice is the classic *Running Linux, Third Edition* by Welsh, Dalheimer and Kaufman and published by O'Reilly & Associates (ISBN 1-56592-469-X, $51.95). There are other good starting guides but this one does the best job of capturing the spirit of Linux while providing essential guidance.

For advanced users, locate a copy of *Linux Power Tools Second Edition*, by Peek, O'Reilly and Loukides, and published by O'Reilly & Associates (ISBN 1-56592-260-3, $85.95). Huge, expensive and worth every cent. Your Linux geek will be thumbing this one for years.

If your giftee is just getting into Linux programming, obtain a copy of *Beginning Linux Programming Second Edition* by Stones and Matthew published by Wrox Press (ISBN 1-861002-97-1, $59.95). This comprehensive overview covers Shell, C, Perl, Tcl and X programming.

Is your Linux person becoming a sysadmin? If the system is Red Hat or Caldera, then let me recommend *Red Hat Linux System Administration Unleashed* published by Sams (ISBN 0672317559, $74.95), or *Caldera OpenLinux System Administration Unleashed* published by Sams (ISBN 0672317699, $74.95) and written by Thomas Schenk, et al. As one of the "et als"—I am one of the authors—I think these are the best sysadmin guides available for these distributions. Mind you, I'm biased.

Don't forget to include some fiction! Leave Harry Potter to the Windows and Mac set. Get your Linux geek a copy of the brilliant science fiction novel *Cryptonomicon*, by Neal Stephenson (ISBN [illegible] 3464, $39.50). It's not only about hacking and cryptography—Stephenson also wrote the novel on his Debian Linux system!



These books are available online, often discounted at http://www.Chapters.ca, http://www.Indigo.ca, and http://www.Amazon.com.

Used computers

One of the joys of Linux is that you can use the latest 1 GHz sportster PC or recycle the old 486 lying in the corridor, both with good results. So be on the lookout for used computers that can no longer haul the load of the latest behemoth software from Microsoft.

Last year's buy of the year, for me, was a discarded 75 MHz IBM Thinkpad portable with 1.3G hard drive and 24 MB RAM. I picked it up for $400, loaded Red Hat Linux 6.2 from a parallel port BackPack CD player, and use it all the time for writing, studying Java, creating HTML pages, etc.

So watch for bargains—being a bottom feeder is fun and cheap. Watch for non-Intel platforms too, such as discarded Sun workstations, Mac 68K boxes, and used DEC Alphas. You can run Linux on all of these. Your ideal gift might be someone else's throwaway.

Network stuff

It's inevitable: at some point your Linux geek is going to start a home network. Networking gift ideas include mini hubs (around $50) to

Continued on page 49

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12X DVD-ROM
SB Live! Value Digital Sound
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V.90/56K⁵ Modem
MS Windows Me and Works Suite 2001
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$1799¹ | **$54/mo.** 48-month Purchase Plan² · E-Value Code [illegible]

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8X/4X/32X CD-RW	Add $269

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V.90/56K Modem
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Turtle Beach Santa Cruz DSP Sound
Altec Lansing 340 Speakers w/Subwoofer
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MS Windows Me and Works Suite 2001
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$3399¹ | **$102/mo.** 48-month Purchase Plan² · E-Value Code [illegible]

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intel inside pentium III

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Golden Orb fan FC-PGA, PII&2	$18/22/22

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SDRAM 64 128 256M PC100	$52 [illegible] 230
SDRAM 64 128 256M PC133	$60/100/240
SDRAM 64M 128M 256M PC133	$85/160 345
ECC-SDRAM PC100 128/256/512	$130/260 560
ECC SDRAM PC133 128/256/512	$140/[illegible]
ECC-SDRAM-Registered PC133 128/256/512	$140/295 [illegible]
SO DIMM 72p 8 16/32M	$[illegible]
SO DIMM 144p 32/64 128M SDRAM	$80/150/245
SO-DIMM 144p 32 64 128 EDO	$90/160 350
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EDO-ECC 128 256M 168pin w/Buffer	$490/[illegible]
[illegible] 64 128M	$90 [illegible]

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ATI Xpert2000 32M Fury 32M w/TO AGP	$105/139
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ATI all-in-wonder pro 32M Radeon 32 AGP	$253/400
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ATI All In-Wonder 32M Radeon DDR AGP retail	$415
Matrox G450 32m DDR Dual ports	$255
Matrox G450 16M DDR SDRAM Dual port	$[illegible]
Diamond Viper? 32M AGP	$120
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3DFx Voodoo5-5500 64M AGP retail	$350/380
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Asus V7700 Geforce 2 GTS 32M AGP4x	$420
Elsa Gladiac Geforce GTS 32M AGP 4x	$410
Elsa Gladiac Geforce GTS 64M AGP 4x	$610
Creative Annihilator [illegible] AGP4x	$390

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Quantum LM 15 20 30G	$160 [illegible] 220
WD 15 20 30G 5400	$[illegible]
WD 20/30 40G 7200	$[illegible]
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IBM ATA100/7200 30 45 60G	$270 295 440
Seagate 5400 15 20 30G	$145 160 180
Seagate 7200 15/20 30G	$160/175/21[illegible]
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Seagate 18G 36G 10k rpm 80pin	$450/[illegible]
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U2WSCSI 4Bay 8Bay case w/power	$[illegible]
Hot swapable Seagate 36G 1"	$[illegible]
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Adaptec 29160U2W 29160LP kit	$290/340
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USR Sportster v.90 PCI (2976-01 Hardware)	$95
Rockwell Supra 56k v.90 Voice PCI	$30
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Cisco 250-CH IP Drivers	$2370
PCMCIA 56k v.90 with 10/BT NIC	$215
PCMCIA 10BT combo 10-100BT	$[illegible]
Xircom 56k RealPort modem	$[illegible]

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CTX 17" 19" Flat .25 1600 Trinitron	$390/460
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NEC FE950 Fp950 17" Flat	$690/950
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Dual-U2IDE ATA100 PCI controller	$70
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Adaptec 2940 2940UW	$220/270
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Adaptec AHA1460 slimSCSI kit	$200
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SCSI [illegible]	[illegible]

Golden Orb fan for FC-PGA [illegible]

[illegible]

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After AMD dropped the prices [illegible] Intel dropped the prices [illegible] Intel hope the stock market [illegible] P4 [illegible] Also got very good market for K7" Raid [illegible] released the Intel based Raid Mobo [illegible] Raid. Matrox shipped its G450 Dual port ATI shipped its Radeon. So what [illegible] Stock [illegible] [illegible] since they are too close [illegible] the market

[illegible]
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1.44MB floppy drive
2x20GB 7200 ATA100 HD
ATI Xpert2000 32MB AGP
Landmark 18" ATX 300W case fan
52x CDROM
56k voice fax modem
Fujitsu 104 Keyboard
Lan 10/100BT NIC
Microsoft Intellimouse w pad
PCI Sound and 120W Speakers

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Intel K7-RAID WebServer

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1.44MB floppy drive
2x 20GB 7200 ATA100 HD
ATI Xpert2000 32MB AGP
Landmark ATX 300W case fan
52x CDROM
56k voice fax modem
Fujitsu 104 keyboard
Lan 10/100BT NIC
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2800DVD-201 [illegible]	$[illegible]
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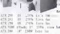

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		Toshiba 48x IDE CD ROM Drive	$78.00

DVD

[illegible] 8X Int. IDE DVD Drive	$125.00
AOpen 10X Int. IDE DVD Drive	$140.00
ASUS 8X Int. IDE DVD ROM Drive	$129.00
LG Electronic 12X DVD Int. IDE Drive	$139.00
Panasonic 8X IDE DVD Drive	$189.00
Pioneer 16X DVD Int. IDE Drive	$159.00
Toshiba 12X DVD Int. IDE Drive	$189.00

Hard Drive (

Fujitsu 10.8GB IDE ATA66 5400rpm/10ms/512k Hard Drive	$128.00
Fujitsu 20.4GB IDE ATA66 5400rpm/10ms/512k Hard Drive	$158.00
Fujitsu 20.4GB IDE ATA66 7200rpm/8.5ms/512K Hard Drive	$208.00
Maxtor 10.2GB IDE ATA100 5400RPM/9ms/512K Hard Drive	$127.00
Maxtor 15GB IDE ATA100 7200RPM/8ms/2MB Hard Drive	$149.00
Maxtor 15GB IDE ATA66 5400RPM/9ms/512MB Hard Drive	$145.00
Maxtor 20.4GB IDE ATA100 7200rpm/8.7MS/2MB Hard Drive	$175.00
Maxtor 30.7GB IDE ATA100 7200rpm/8.7MS/2MB Hard Drive	$219.00
Maxtor 30GB IDE ATA100 5400RPM/9ms/2MB Hard Drive	$179.00
Maxtor 40.9GB IDE ATA100 7200rpm/8.7MS/2MB Hard Drive	$308.00
Quantum 15GB FB+ LM ATA-66 7200rpm/9.5ms/512K Hard Drive	$148.00
Quantum 20.5GB FB+ LM ATA-66 7200rpm/8.5ms/2MB Hard Drive	$179.00
Quantum 30GB FB+ LM ATA-66 7200rpm/8.5MS/2MB Hard Drive	$228.00
WD 10.2GB IDE ATA66 5400rpm/9.5ms/2MB Hard Drive	$129.00
WD 15.3GB IDE ATA66 5400rpm/9.5ms/2MB Hard Drive	$148.00
WD 20.5GB IDE ATA66 5400rpm/9.5ms/2MB Hard Drive	$158.00
WD 20.5GB IDE ATA66 7200rpm/9ms/2MB Hard Drive	$185.00
WD 30.7GB IDE ATA66 5400rpm/9.5ms/2MB Hard Drive	$218.00

Store Hours :
Mon - Fri 9:30 - 6:30
Sat. 9:30 - 6:00

#150 - 5172 Kingsway
Burnaby, B.C.
Fax:(604)419-8898
Tel:(604) 419-8828
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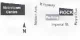

Keyboard

Fujitsu 4725 P/S2 Keyboard	$85.00
Fujitsu 4725 Win95 P/S2 Keyboard	$19.00
Logitech Cordless Freedom Navigator P/S2 Keyboard	$119.00
Logitech Cordless I Touch P/S2 Keyboard	$76.00
Logitech Cordless I Touch P/S2 Keyboard w/Mouse & Pad	$116.00
Logitech Cordless Pro I Touch P/S2 Keyboard w/Mouse/Rest	$148.00
Logitech Deluxe P/S2 Keyboard	$29.00
Logitech Internet P/S2 Keyboard	$36.00
MS Internet P/S2 Keyboard	$28.00
MS Internet Pro P/S2 Keyboard	$55.00
MS Natural Elite Keyboard P/S2	$88.00

Mouse

Logitech Cordless MouseMan Wheel Mouse	$75.00
Logitech Cordless Wheel Mouse	$45.00
Logitech MouseMan Wheel USB Combo Mouse	$48.00
Logitech Trackman Marble Wheel USB Mouse	$88.00
MS Optical Explorer Mouse PS/2 & USB (Silver) Mouse	$75.00
MS Optical Wheel P/S2 Mouse	$55.00
Wacom 4x5 Serial ArtPad for PC	$118.00
Wacom 4x5 USB Graphire Tablet	$119.00

Hard Drive

Fujitsu 18.2GB 10krpm/5ms/4MB Ultra160 SCSI Hard Drive	$489.00
Fujitsu 9.1GB 7200rpm/10ms/256K U2W SCSI Hard Drive	$344.00
IBM 18GB 10KRPM/4.9ms/2MB Ultra 160 SCSI Hard Drive	$848.00
IBM 36GB Ultra 10K/4.9ms/4MB SCSI Hard Drive	$939.00
Seagate 18.4GB 10krpm/6ms/2MB Ultra160 SCSI Hard Drive	$575.00
Seagate 9.1GB 10krpm Ultra160 SCSI Hard Drive	$358.00
WD 18.0GB 10K rpm/2MB U2 SCA2 SCSI Hard Drive	$696.00
WD 18.3GB 10Krpm/7.4ms/2MB U2 SCA2 SCSI Hard Drive	$719.00
WD 9.1GB 10Krpm/2MB U2W SCSI Hard Drive	$498.00

CD Writ

Acer CRW8x4x32 Int. EIDE Bare Drive	$189.00
Creative Labs 12x10x32 Int. IDE CD ReWrite Drive Retail	$388.00
Creative Labs 8x4x32 Int. IDE CD- ReWrite Drive OEM	$199.00
HP 9150 8x4x32i IDE Int. CD-ReWrite Drive	$269.00
HP 9350 10x4x32i IDE Int. CD ReWrite Drive	$322.00
Memorex 4x4x20 Parallel CD-ReWrite Drive w/PC Kit	[illegible]
Microsolutions 4x4x24 USB/Parallel CD-ReWrite Drive	[illegible]
Panasonic CW7580 (8x8x32) CD-ReWrite Drive	[illegible]
Plextor 12x10x32 Int IDE CD- ReWrite With Kit	[illegible]
Plextor 8x4x32x Int. IDE CD-ReWrite Drive	$258.00
Ricoh 7x10x32 CD Write Drive	$269.00
SONY 10X4X32 CDRW Int. EIDE Bare CD-ReWrite Drive	$319.00
SONY 12X10X32 CDRW Int. EIDE Bare CD-ReWrite Drive	$388.00
SONY 8X4X32 CDRW Int. EIDE Bare CD ReWrite Drive	[illegible]
Yamaha CRW16x10x40 EIDE Int. CD-ReWrite Drive	[illegible]
Yamaha CRW8424B Int. SCSI Bare CD ReWrite Drive	$268.00

Video C

3dfx Voodoo3 2000 16MB AGP Video Card	$86.00
3dfx Voodoo3 3000 16MB AGP Video Card	$128.00
3dfx Voodoo3 3500 16MB AGP Video Card w/TV Tuner	$249.00
3dfx Voodoo5 5500 64MB AGP Video Card	$418.00
ABIT [illegible] GF2MX AGP Video Card w/TV Out	$189.00
ASUS V[illegible] 32MB DDR Deluxe GeForce256 AGP Video Card TV	$281.00
ASUS V7100 16MB DDR Pure GeForce II MX AGP Video Card	$158.00
ASUS V7100 32MB DDR Pure GeForce II MX AGP Video Card	$209.00
ASUS V7100T 32MB DDR Pure GeForce-II MX AGP Video Card w/TV	$228.00
ASUS V7700 32MB DDR Deluxe GeForce-II AGP Video Card w TV In	$429.00
ASUS V7700 64MB DDR Pure GeForce-II AGP Video Card	$498.00
ATI 32MB All-in-Wonder Pro128 AGP Video Card	$288.00
ATI 32MB Radeon DDR AGP Video Card	$238.00
ATI 32MB SDR Radeon AGP Video Card	$228.00
ATI 32MB SDR Radeon AGP Video Card PC2TV	$248.00
ATI 32MB SDR Radeon All-in-Wonder AGP Video Card	$419.00
ATI 32MB SRAM Xpert2000 AGP Video Card	$100.00
ATI 64MB DDR Radeon VIVO AGP Video Card	$429.00
ATI 8MB SRAM Xpert98 AGP Video Card	$44.00
Creative 32MB Annihilator2 GeForce2 GTS AGPx4 Video Card	$379.00
HIS 32MB TNT2 Pro AGPx4 Video Card	$96.00
Matrox 32MB Millennium G450 DualHead Video Card	$158.00
Oxygen 32MB VX1 AGP Video Card Retail	$269.00
Pine S3S 3D 8MB AGP Video Card	$45.00

Speakers

Altec Lansing ACS[illegible] Speakers	$146.00
Altec Lansing ACS54w Speakers	$86.00
Altec Lansing ADA305WD Wall Box Speakers	[illegible]
Altec Lansing ATP3 Speakers	$115.00
Altec Lansing ADA70 USB Speakers	[illegible]
Cambridge DeskTop Theater 5.1 DTT2200 Digital Speakers	[illegible]
Cambridge DeskTop Theater 5.1 DTT2500 Digital Speakers	$319.00
MS-808 Multimedia w/Subwoofer Speakers	[illegible]
Yamaha YST M101 Speakers	$39.00

GRANITE SYSTEM

Intel Celeron2 600MHz FC-PGA CPU & Fan
Elite SiS630E FC-PGA/370 Motherboard ATX
64MB PC133 SDRAM
Panasonic 1 44MB 3 1/2" Floppy Drive
Maxtor 15GB IDE-ATA66
5400RPM/9ms/512MB Hard Drive
8MB Integrate AGP Video Card
18" Tower Case/250W Power Supply
Monterey 104 Win98 P/S2 Keyboard
Logitech 2B P/S2Mouse
56K V 90 Integrated Voice Integrate Fax/Modem
16Bit 3D Integrate Sound
Creative Labs 52x IDE CD ROM Drive
120W Stereo Amp w/AC Adapter Speakers
One Month Internet Free
Full warranty

15" SVGA Color Monitor
$176 Special price with this system

$599

RUBY SYSTEM

AMD K7 Duron 650MHz CPU & Fan
GIGABYTE GA 7ZM AMD K7
Sock A Motherboard ATX
64MB PC133 SDRAM
Panasonic 1 44MB 3 1/2" Floppy Drive
Maxtor 20 0GB IDE ATA100
5400RPM/9ms/2MB Hard Drive
32MB Geforce-2 TNT2 Pro AGPx4 Video Card
18" Tower Case/250W Power Supply
Monterey 104 Win98 P/S2 Keyboard
Logitech 2B P/S2Mouse
56K V 90 Int Real PCI Voice/Fax Modem Card
16Bit 3D Integrate Sound
Creative Labs 52x IDE CD ROM Drive
Juster 681 140W Stereo w/AC Built In Speakers
One Month Internet Free
Full warranty

$748

17" AOC SVGA
Color Monitor $246 Special price with this system

EMERALD SYSTEM

Intel Pentium III 733MHz/PC133,256K
FC-PGA CPU & Fan
ASUS CUV4X A FCPGA Motherboard
ATX with Integrate Sound
128MB PC133 SDRAM
Panasonic 1 44MB 3 1/2" Floppy Drive
Maxtor 30 7GB IDE-ATA100
7200prm/8 7MS/2MB Hard Drive
ATI 32MB SRAM Xpert2000 AGP Video Card
18" Tower Case/250W Power Supply
Monterey 104 Win98 P/S2 Keyboard
Logitech 2B P/S2 Mouse
56K V 90 Int Real PCI Voice/Fax Modem Card
16Bit 3D Integrate Sound
Creative Labs 52x IDE CD ROM Drive
MS-898 Multimedia w/Subwoofer Speakers
One Month Internet Free
Full warranty

$1,168

Come with Free Printer
Detail in Store

DIAMOND SYSTEM

AMD thunderbird 800MHz Sock A CPU & Fan
ASUS A7V AMD K7 Sock A Motherboard ATX
128MB PC133 SDRAM
Panasonic 1 44MB 3 1/2" Floppy Drive
Maxtor 30 7GB IDE ATA100
7200prm/8 7MS/2MB Hard Drive
ASUS V7100 32MB DDR Pure
GeForce-2 MX AGP Video Card
18" Tower Case/300W Power Supply
Logitech Internet P/S2 Keyboard
Logitech First Mouse Plus P/S2
56K V 90 Int Real PCI Voice/Fax Modem Card
SoundBlaster Live Value Sound Card
Altec Lansing ACS54w Speakers
LG Electronic 12X DVD Int. IDE Drive
One Month Internet Free
Full Warranty

$1,498

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ROCK SERVER #1

Dual Intel Celeron2 600MHz FC-PGA CPU Retail
MicroStar 694D Pro Dual Coppermine Motherboard ATX
256MB PC133 SDRAM
Panasonic 1 44MB 3 1/2" Floppy Drive
Maxtor 30 7GB IDE-ATA100 7200prm/8 7MS/2MB Hard Drive
8MB DX 3D AGP Video Card
24" ATX In-Win Tower Case/300W Power Supply
Toshiba 48x IDE CD ROM Drive
3COM 3C905B-TX-NM Ethernet 10/100 Network
One Month Internet Free
Full warranty

$1,645

ROCK SERVER #2

Dual Intel P3 733MHz/PC133,256K FC-PGA CPU & Fan
ASUS CUR-DLS ServerSet III LE Motherboard ATX
256MB PC133 ECC SDRAM
Panasonic 1 44MB 3 1/2" Floppy Drive
LSI Dual channel Ultra2 33MHz Integrade SCSI Controller
18.2GB 10krpm/6 8ms/4MB Ultra160 SCSI Hard Drive
ATI 4MB SDRAM RAGE XL Integrata Video
Net Server A9891 ATX Case w/o Power Supply
Power Supply 300W Redundant ATX
Toshiba 40x SCSI CD ROM Drive
Intel EtherExpress Pro/100+ Integrat
One Month Internet Free
Full warranty

$3,638

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Printer

Brother LaserJet HL 1030 Printer	$376.00	HP DeskJet 970CSE C	$438.00
Brother LaserJet HL 1240DX Printer	$448.00	HP LaserJet 2100TN	$1,448.00
Brother MFC-8600 Multi-Function center	$736.00	HP LaserJet 2100x	$878.00
Canon DeskJet BJC 1000SE Color Printer	$79.00	HP LaserJet 4050 Printer	$1,599.00
Canon DeskJet BJC 3000 Color Printer	$178.00	HP LaserJet 4050N Printer	$2,050.00
Canon DeskJet BJC 8200 Color Printer	$479.00	HP LaserJet 5000 Printer	$2,799.00
Canon DeskJet 5450 Color Printer	$246.00	Lexmark DeskJet Z12 Color Printer	$88.00
EPSON Deskjet 440 Color Printer	$106.00	Lexmark DeskJet Z32 Color Printer	$168.00
HP Color LaserJet 4500 Printer	$3,568.00	Lexmark DeskJet Z52 Color Printer	$279.00
HP Color LaserJet 4500DN Printer	$6,479.00	Lexmark LaserJet Optra E310 Printer	$589.00
HP DeskJet 840C Color Printer	$106.00	Lexmark LaserJet OptraT610 Printer	$1,380.00
HP DeskJet 930C Color Printer	296.00		

Hub Repe

[illegible] 8Port 10Base Hub	$350.00
3COM 8Port Office Connect Dual Speed Hub	$336.00
3COM 24Port 10/100 Dual Speed Superstack Hub	$1,245.00
[illegible] 10Base TX Office Connector Hub	$98.00
D [illegible] Port 10Base Hub	$196.00
[illegible] Port 10/100Base Dual Hub	$305.00
[illegible] Port 10Base Hub	$319.00
[illegible] Port 10/100Base Dual Hub	$125.00
[illegible] Port USB Hub	$48.00
[illegible] 10/100Base Dual Hub	$86.00
D-Link [illegible] Port USB Hub	$106.00
[illegible] 10/100Base Dual Hub	$175.00
[illegible] Port 10Base Hub	$86.00
Linksys EtherFast Cable/DSL 1 Port Router	$168.00
Linksys EtherFast Cable/DSL 4 Port Router	$248.00
[illegible] 8Port Networking Hub 10 base Stackable	$38.00
[illegible] Firebox 10 User Base	$606.00
[illegible] Firebox 10 User w/VPN	$719.00

Tape Dri

[illegible] 10/20GB IDE Tape Backup Drive	$300.00
[illegible] Comp to 14GB Travan NS Backup Drive	$590.00
HP Colorado 14GB Int IDE Tape Backup	$316.00
HP SureStore DAT 40i Tape Drive	$1,580.00
IBM [illegible] 5GB Tape BackUp Drive	$796.00
IBM DLT DDS-3 Tape Drive BackUp Unit	$1,074.00
OnStream 30GB NT IDE BackUp Drive	$504.00

Scanner

Acer Prisa 640U USB Scanner	$99.00
Canon N340P Color Scanner	$88.00
Canon N640P Color Scanner	$119.00
Canon N650U Color Scanner	$146.00
Epson 1200S SCSI Perfection Scanner	$389.00
Epson 1200U USB Photo Perfection Scanner	$388.00
HP 3300C Color Scanner	$139.00
HP 5300Cx Business Series Color Scanner	$329.00
HP 6300Cx Professional Series Color Scanner	$519.00
HP 8350Cx Professional Series Color Scanner	$838.00
MicroTek ScanMaker V6UPL Flatbed Scanner	$176.00
MicroTek ScanMaker V6USL Flatbed Scanner	$176.00
UMAX 2200 USB/SCSI Flatbed Scanner	$216.00
UMAX 4000U Flatbed Scanner	$246.00
Visioneer 7600 Flatbed USB Scanner	$166.00

Controller Car

Adaptec 2930B PCI SCSI Controller	$48.00
Parallel Port EPP/ECP ISA Card	$18.00
Promise Fasttrack ATA100 RAID Controller	$125.00
Tekram DC390 SCSI 2 PCI Controller Card	$70.00
Tekram DC390F UW SCSI Bootable PCI Controller Card	$119.00
Tekram DC390U2W U2W SCSI PCI Bootable Controller Card	$259.00
USB PCI Controller Card	$29.00
Xnet Fire Wire IEEE 1394 Controller Card	$98.00

Optical Dr

Iomega 100MB Ext USB ZIP Drive	$126.00
Iomega 100MB IDE Int ZIP Drive	$98.00
Iomega 100MB Parallel & SCSI Ext ZIP+ Drive	$236.00
Iomega 100MB Parallel Ext. ZIP Drive	$139.00
Iomega 100MB SCSI Ext. ZIP Drive	$189.00
Iomega 100MB SCSI Int. ZIP Drive	$209.00
Iomega 250MB Ext Parallel ZIP Drive	$219.00
Iomega 250MB Ext SCSI ZIP Drive	$199.00
Iomega 250MB Ext USB ZIP Drive	$249.00
Iomega 250MB Int. ZIP Drive	$244.00
Iomega 2GB JAZ Ext SCSI Drive	$435.00
Iomega 2GB JAZ Int. SCSI Drive	$446.00
Panasonic 100MB IDE Int. ZIP Drive	$88.00

Sound Ca

[illegible] Ensoniq PCI Sound Card	$29.00
Sound Blaster Live MP3+ Sound Card v5.1	$180.00
Sound Blaster Live Platinum Sound Card v5.1	$266.00
Sound Blaster Live Value Sound Card	$89.00
Sound Blaster Live X GAME Sound Card	$129.00
Sound Blaster PCI 128 Sound Card	$46.00

Network C

3COM 3C410 Home Connect PhoneLink Network Card	$99.00
3COM 3C410 Kit Home Connect PhoneLink Network Kit	$189.00
3COM 3C509B-TPO ISA RJ45 Networking Card	$87.00
3COM 3C905B TX NM Ethernet 10/100 Network	$66.00
3COM 3C905C TXM 10/100Base PCI Networking Card	$68.00
Acer Ethernet Combo ISA PnP 10Mbps Card	$19.00
Acer Ethernet Combo PCI PnP 10Mbps Card	$19.00
D Link DFE 538TX 10/100Base PCI RJ45 Network Card	$26.00
GVC Ethernet 10/100 PCI Networking Card	$25.00
GVC Ethernet ISA Network Card	$29.00
GVC Ethernet PCI Combo Network Card	$25.00
Intel EtherXpress Pro 100 Plus PCI Network Card	$79.00

NoteBook

[illegible] 12.1"TFT Notebook	[illegible]
Acer [illegible] 14.1"TFT Notebook	$2,738.00
Acer 751TXV [illegible] DVD [illegible] 14.1"TFT Notebook	$3,379.00
Acer [illegible] 15"TFT Notebook	[illegible]
Fujitsu B2[illegible] 10.4"TFT Notebook	[illegible]
Fujitsu E6[illegible] 14.1"TFT Notebook	[illegible]
Fujitsu E6[illegible] 14.1"TFT Notebook	[illegible]
Fujitsu E6540 [illegible] 14.1"TFT Notebook	[illegible]
IBM 390 P2 [illegible] 14.1"TFT Notebook	[illegible]
IBM 390 P3 [illegible] 14.1"TFT Notebook	$2,498.00
IBM 570 P3 [illegible] 13.3"TFT Notebook	$3,576.00
IBM A20m [illegible] 12.1"TFT Notebook	[illegible]
IBM A20m P3 [illegible] 14.1"TFT Notebook	[illegible]
IBM A20m P3 [illegible] 14.1"TFT Notebook	[illegible]
IBM A20m P3 [illegible] 14.1"TFT Notebook	$4,199.00
IBM A20p P3 700 [illegible] 15"TFT Notebook	[illegible]
IBM i1210 [illegible] HPA Notebook	$1,418.00
IBM i1230 [illegible] HPA Notebook	[illegible]
IBM [illegible] 12.1"TFT Notebook	[illegible]
IBM [illegible] TFT Notebook	$1,899.00
IBM [illegible] 13.3"TFT Notebook	$2,748.00
Toshiba [illegible] DVD [illegible] 14.1"TFT	$2,839.00

Camcorder

Canon PowerShot A50 Digital Cam	$618.00
Canon PowerShot S10 Digital Ca	$768.00
Creative WebCam II USB Camer	$69.00
EPSON PC3000Z Digital Camera	$1,280.00
EPSON PC850 Digital Camera	$389.00
Kodak DC215 Digital Camera	$419.00
Kodak DC220 Digital Camera	$649.00
Logitech QuickCam Express	$57.00
Logitech QuickCam Home USB Camera	$125.00
Logitech QuickCam VC Parallel Camera	$99.00
Logitech QuickCam VC USB Camera	$99.00

PCMCIA C

3COM Megahertz 10/100 LAN PC Card	$126.00
3COM Megahertz 10/100 LAN PC Card	$179.00
D Link 10/100mbps 16-bit Fast Ethernet PCMCIA Adapter	$116.00
GVC 10/100 PCMCIA Ethernet Card	$58.00
GVC 56K PCMCIA V90 Modem Card	$96.00
LinkSys PCMPC100 10/100 Lan Card	$98.00
Netgear FA410 10/100 RJ45 PCMCIA Ethernet Card	$99.00

Fax/Mo

AGVC 56K V 90 Int PCI Voice Fax/Modem Card	$35.00
TAICOM 56K V 90 Int Real PCI Voice/Fax Modem Card	$36.00
USR 56K V 90 External Sport Voice Fax/Modem Card	$186.00
USR 56K V 90 External USB Pro Voice Fax/Modem	$188.00
USR 56K V 90 Internal Fax Win PCI Modem Card	$39.00
USR 56K V 90 Internal PCI Voice/Fax Modem Card Retail	$109.00
USR 56K V 90 Internal ISA Voice/Fax Modem Card	$99.00
USR 56K V 90 Internal Real PCI Voice/Fax Modem Card	$89.00

Casse & P

Net Server A9891 ATX Case w/o Power Supply	$279.00
Power Supply 300W Redundant ATX	$389.00
RackMount 2U TP2052 Case w/o Power Supply	$456.00
RackMount 4U TP4052 Case w/o Power Supply	$386.00
RackMount 4U TP6054 Case w/o Power Supply	$236.00

Gift ideas for small business operators

Continued from page 28

Unlike many other all-in-ones, it is a laser printer, not an inkjet, which suits the high quality printing needed for business use. It prints up to 8 ppm (pages per minute) at a resolution of 400x600 dpi (dots per inch) and copies up to 10 ppm at 600x600 dpi.

Unique for its size and price, it also comes complete with a 30-page automatic document feeder which helps simplify multi-page photocopying.

The paper tray has a 250 page capacity so the person receiving this gift won't be spending all his or her time refilling it. It is an impressive value at approximately $800, especially when you include Xerox's three-year warranty.

Alternatives: Check out *The Computer Paper*'s November Lab Test report on multi-function devices. We give the Editor's Choice award to Samsung's SCX-1000 in the inkjet category, and to the Brother MFC-9600 in the laser category.

Digital organizer accessories

Fellowes makes accessories for PDAs to improve their lifespan, including WriteRights and Bumpers. WriteRights are clear sheets of plastic film designed to protect the lens of your PDA. They claim to prevent scratching, reduce glare, and improve the handwriting accuracy of the stylus. A one-year supply for monthly replacement retails for approximately $50.

You wouldn't want a vehicle without a bumper but what about a PDA? Fellowes has created a Bumper for PDAs to protect them against bumps and bruises, as well as scratches or rain.

It is a water resistant case with a hideaway lid to protect the surface of your PDA and a built-in window for infrared beaming. With its built-in loops, you can wear it around your neck or wrist. It supports all Palm Computing devices. It retails for approximately $70.

Norton Internet Security 2001 Norton Systemworks 2001

Have yourself a safe little Christmas. Small business operators have many of the same security issues of their larger business counterparts, yet Internet, virus, and data security are often overlooked. Norton Internet Security 2001 and Norton SystemWorks 2001 can help. The Internet Security package includes Norton Personal Firewall to protect against hackers, Norton AntiVirus, which protects a PC against viruses, and Norton Privacy Control to keep the business' information private.

Norton SystemWorks 2001 Professional Edition also comes with Norton AntiVirus as well as the tried and true Norton Utilities to optimize system performance, Norton CleanSweep to remove Internet clutter, Norton Ghost for hard drive backup as well as WinFax Basic. The latter may not help with Internet or data security but will certainly find use in a small business.

Norton Internet Security 2001 2.5 retails for $105, and Norton SystemWorks 2001 Professional Edition 4.0 retails for $190.

Notebook computer

If your gift buying budget allows you to spare $2,000 you can actually now buy a decent notebook computer in that price range. The Dell Inspiron 3800 notebook computer is one such good value. It has a 600 MHz Intel Celeron processor, 32 MB of SDRAM that can be upgraded to 512 MB, a 5 GB hard drive that can be upgraded to 30 GB, 24x speed CD-ROM drive, a built-in 56Kbps modem and a 12.1 inch SVGA active matrix display.

It has a four cell Lithium Ion Battery and comes with Windows Millenium Edition (Me), Microsoft Works Suite 2000, and a one year next business-day on site service warranty, which is great for the business person who can't be without a computer for very long. It retails for approximately $2,000 but Dell also offers a monthly payment plan for people who would rather pay for it at a more manageable pace.

Other notebook computers with similar features and pricing include Toshiba's Satellite 1710 series, Hewlett Packard's N3438, IBM's ThinkPad i1340 and Compaq's 304e. ❑

Ask the pet expert online

NB—To relaunch its portal, Petcity.com has started an online Ask the Pet Expert service, allowing users to ask questions, or sign up as experts and answer questions. All the answers are given by real people allowing follow-up questions if more information is needed.

http://www.petcity.com

Celebrating garlic in style

NB—Gilroy, Calif. has been hosting the biggest garlic festival in the U.S. for 21 years. Of course it's not all garlic, but the town is referred to (by itself) as the garlic capital of the world. Strangely enough, the festival was inspired by a French town that proclaimed itself the garlic capital. You'll have to visit both, and sample all the food and attractions, to make your own mind up on their claims.

http://www.gilroygarlicfestival.com/

Anitec Computers
2607 Kingsway Vancouver B.C. V5R 5H4
Ph: (604)435 2038 Fax: (604)435 1298
Business Hours: Mon.-Sat. 10-6 Sun. close
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Anitec

SAMSUNG 700NF $395
17" flat monitor .25mm aperture grille 1600x1200
PRICE BEFORE REBATE

SAMSUNG 700IFT $375
17" flat monitor .25mm 1600x1200
PRICE BEFORE REBATE

SAMSUNG 753DF $319
17" flat monitor .20mm(H) 1280x1024
PRICE BEFORE REBATE

IBM 75GXP 30G $219
Fastest and quietest EIDE hard drive
7200RPM 8.5Ms, 2Mb buffer memory

HP Omnibook PII400 $1998
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ACT 17" ATX 250W tower
GA 6VX7-4X 133M mainboard
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ATI Xpert 98 8Mb AGP
Maxtor 20G ata66 hard drive
Panasonic 1.44Mb floppy drive
Creative 52X CDROM drive
AC97 stereo sound
Motorola 56K v.90 fax/modem
or 10/100 network card
3D Stereo speakers
Windows 98 keyboard
PS2 wheel mouse

ACT SUPER
Intel PIII 800 $1138
Or Monthly Lease $40
ACT 18" ATX 250W w/2nd fan
Asus CUV4X 133M mainboard
PC133 128Mb SDRAM
Sniper TnT2 Pro 32Mb AGP
Maxtor20G 7200rpm ata100 HD
Panasonic 1.44Mb floppy drive
Creative 52X CDROM drive
Sound Blaster Live Value digital
USR 56K v.90 fax/modem
or 10/100M network card
3D speakers with subwoofer
Microsoft Internet keyboard
Microsoft wheel Intellimouse

ACT PREMIUM
Intel PIII 800 $1599
Or Monthly Lease $58
ACT 18" ATX 250W w/2nd fan
Asus CUSL2 ata100 mainboard
PC133 128Mb SDRAM
Asus V6800 Geforce deluxe 32M
IBM 30G 7200rpm ata100 HD
Panasonic 1.44Mb floppy drive
Creative 52X CDROM drive
Sound Blaster Live Value digital
USR 56K v.90 fax/modem
or 10/100M network card
Cambridge speakers w/sub
Microsoft Internet keyboard
Microsoft Intellimouse wheel

ACT DURON
AMD Duron650 $839
Or Monthly Lease $29
ACT 17" 300W tower w/2nd fan
GA 7ZM Socket A mainboard
PC133 64Mb SDRAM
Voodoo III 2000 16Mb AGP
Maxtor 20Gb ata66 hard drive
Panasonic 1.44Mb floppy drive
Creative 52X CDROM drive
On board 3D stereo sound
Motorola 56K v.90 fax/modem
or 10/100m network card
3D stereo speakers
Windows PS2 keyboard
PS2 wheel mouse

ACT THUNDER
AMD T-Bird 800 $1450
Or Monthly Lease $51
ACT 19" ATX 300W tower w/2 fans
Asus A7V A ata100 mainboard
PC133 128Mb SDRAM
Asus V7100 Geforce2 MX 32Mb
IBM 20G 7200rpm ata100 H.D
Panasonic 1.44Mb floppy drive
Creative 52X CDROM drive
Sound Blaster Live Value digital
USR 56K v.90 fax/modem
or 10/100m network card
Altec Lansing speakers w/sub
Microsoft Natural keyboard
Microsoft Intellimouse wheel

OPTIONS Windows ME+$139 Windows 2000 Pro+$199 Upgrade CD to Pioneer16X DVD +$139,Add Panasonic 8432 CDRW and sfw+$199

ASUS
CUV4X/CUBX $155/189
CUSL2(i815 ata100) $215
A7V(KT133 socket A)$215
K7V(KX133 slot A) $189
P3V4X(Via133) $158
P3BF(440BX) $178
P5A/B(ATX/AT [illegible])$128/118
ME99VM(Video S370) $139
P2B-D(ATX 440BX Dual) $369
P2B-DS(ATX DUAL SCSI) $678

BIOSTAR
7MKA-B([illegible],K7) $288
M6TWC(S370) $145
M5ALC(Super 7) $109
M6TXA(S370) $169

FIC
VA503+(AT mvp3 agp 1M) $119
VA2013(ATX mvp3 1M) $135
SD11(ata slot a Athlon)$179

MATSONIC
M754 all-in-one PGA) $118
M985(via694X s370 S)$129

ABIT
VA6(Via133 slot 1) $118
VT6X4(Via 133 4xagp) $145
VH6(via133Socket 4x) $139
SL6(i815 ata66 4x) $165
SE6(i815 ata100 4x) $199
BE6/2(ata66 s ot1) $175
BX133raid(BX ata100)$158
KT7/raid(KT133) $200/220
KA7100(KT133 ata100)$209

Motherboard Warehouse!

ACER
AX59Pro II(ata 1Mb [illegible]) $119
MX59Pro (ATA66 S&V) $118
AX6BC(ATX 8X AGP slot) $135
AX63(via133 ata66 slot) $118
AX64Pro(via694X slot) $175
AX34(via694X socket S) $149
MX34(via694X socket S) $138
MX3S(i825E s/V/L) $238

QDI SPEEDEASY
Advance 5/133M ata66 slot1$110
Advance 10/133 ata66socket$149

SPACEWALKER
501P(AT super7 [illegible])$119
H681P(ATX 440BX) $159

SOYO/M-Tech
6VBA100 $189
6VCA(via133 slot1 ata66) $169
7VCA(via133 pga ata66) $169
7AIA(ATX via133 Athlon) $229

EPoX
G2/G5(A[illegible]M via) $139/108
7KXA(K7 KX133) $188

GIGA-BYTE
GA6VXC7-4X(133 4x socket) $128
GA7ZM(Via KT133 socketA) $149
GA7ZX(133 socketA 5xpci)$179
GA7ZXR(133 socketA ata100)$215
GA6VX 1394(694X IEEE1394) $179
GA 6VXDC7(694X Dual 370) $188
GA6VXE7+(693 133MHz) $109

TYAN
Trinity400(VIA133 Slot1&S370)$159
Trinity 2390(KT133 socket A) $189

MicroStar
BX master(BX ata66) $189
6309(via133 pga ata66 socket) $135
B159VA(Via133 slot1) $118
694DPro(Dual socket 370) $249
K7TPro/II(SocketA ata100) $209/$?

CPU

Pentium III	Retail/OEM	Celeron	Retail/OEM	AMD TBird	Retail/OEM	AMD Tbird	Retail/OEM	AMD Duron	Retail/OEM
800(FC-PGA)	$315 / $309	566A(FC-PGA)	$135 / $129	700	$190 / $170	900	$295 / $250	650(socketA)	$99 / $85
850(FC-PGA)	$390 / $389	633A(FC-PGA)	$140 / $149	750	$200 / $180	950	$390 / $300	700(socketA)	$129 / $105
933(FC-PGA)	$730 / $720	667A(FC-PGA)	$150 / $148	800	$230 / $225	1000	$450 / $419	750(SocketA)	$179 / $140
1000(FC-PGA)	$975 / $959	700A(FC-PGA)	$179 / $179	850	$270 / $255	1100	$580 / $539	650(SocketA)	$209 / $175

PRINTER/SCANER
INKJET
HP815/870 $148/190
HP935/970 $383/428
HP1220/2000 $640/1300
Canon 2100/3000 $80/170
Epson 580 $89
880/870/900 $219/369/304
Lexmark Z15 [illegible]
Z32/Z42/Z52 $140/$219/$240
LASER
HP1100/2100 $505/970
Lexmark E310 $500
Brother1250 $309
SCANNER
ACER 640U/BU $99/$109
Epson [illegible] $111/279
Canon N650U $149

MONITOR
Samsung[illegible] $[illegible]
753DF/753DF $319/329
700IFT/700NF $375/395
900IFT/900NF $[illegible]
LCD 150/170mp $1096/3499
NEC FE750/950 17" | 19" $[illegible]
AOC 17" .28 1280x1200 $250
19" .26 1600x1200 $388
SONY E200/E400 $[illegible]
[illegible]
Viewsonic
E771/E773 $[illegible]
E790 $409
EF70/PF775 $389/475
PF790 $[illegible]
Nanao [illegible] $[illegible]
LG795FT+/775 flat $418/359
KDS AV17[illegible]FT $279/559

VIDEO CARD
ATI(AGP)
Xpert98/2000 $89/109
Fury pro 8V retail 32M $169
All-in-W 128 Pro 32m $269
Radeon 32M/64M $[illegible]
Radeon All-in-wonder 32 $429
MATROX
G400 16/32M single $130/181
CREATIVE
Ann Blaster [illegible] GTS 32M $318
3DFX VOODOO 3/5(AGP)
2000/3000/5500 $99/129/389
ASUS 6800 ultra 32Mb $218
6800 Deluxe dvir 32 @ $279
7100 pure/TV out $169/229
7700 pure/Del dfs $360/450
POWERCOLOR
Riva TnT2 pro 32m 128 $136
ACER Geforce II MX 32 $175
MSI Geforce II MX 32M $169
Abit GeforceII MX 32M tv$209

CD-WRITER
Panasonic 8432 rw ram $399
HP9150i 8x4x32 $259
HP9310i 10x4x32 $369
HP8230E external USB $329
YAMAHA
8824 int IDE /SCSI $229/389
PLEXTOR
12x10x32 int.IDE RW $399
12x4x32 RW SCSI $409
CREATIVE 12x10x32 rw $279
RICOH 12x10x32 RW $399
SONY 8432 CDRW $229
Adaptec 2003 $[illegible]
2200U retail $139

SPEAKER
ACS33/45 2.54 $38/60/88
FPS1500/2000 $109/179
Theatre 6.1 $359
Monsoon MM[illegible] $[illegible]

HARD DRIVE
Maxtor DiamondMax
5400 10/20/30/40/61$129/155/178/249
7200 15/20/30G $169/175/219
40G $[illegible]
Quantum
LM 7200 15/20/30G $145/175/229
IBM 75GXP
7200 15/20/30Gb $189/209/219
Fujitsu 10/15/20/30
$115/125/140/170
Promise ATA100 controller $55

NETWORK
D-Link DFE530/538 10/100 $20
D-Link DFE[illegible] Kit $149/189
D-Link 5 ports 10/100 switch $149
ACER 16m 5/8 hub $38/70
3-COm 3c905 10/100 $69
Linksys router/1/4 port $199/235
3Com ADSL modem $300
PC Card 10M/10/100M $69/70

SOUND/CDROM
Creative 52X CDROM $55
SB 1012/Live $[illegible]
SB MP3 5.1 digital $130
Panasonic 8XDVD $139
Toshiba 12X DVD $149
Pioneer 16X DVD $169

NOTEBOOK
Special!!! $1988
HP PII400
64M 6.4G 14.1
TFT,24X Win98, 3 year wa

Notebook Memory
PC100 144pin 32/64/128M
$80/99/199

Notebook PCMCIA card
V.90 56K Fax/Modem $79
V.90 56K F/M+10M NIC $109
10Mb PC card $49

RAM (call for Prices)
PC100 64 128/256M[illegible]
PC133 64 128/256M[illegible]
PC133 CAS2 128Mb $[illegible]

FAX/MODEM
Motorola PCI V.90 voice $25
USR V90 win/hardware $45/78
Supramax PCI v.90 voice $48
Acer 56k PCI/ISA $35/59

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-one IP Address for entire network $238

Intel Pentium III Dream Machine for Power User

Pentium III Power User

- Intel D815EEAA Motherboard
- 133MHz FSB & U ATA100 Ready
- 64MB PC133MHz SDRAM
- 20GB U-ATA 100 HDD
- Panasonic 1.44MB 3.5" FDD
- On-board Intel Graphics Adapter
- Acer 107 Win 98 Keyboard
- ATX Tower w/ 250W P/S
- Acer Wheel Mouse
- Creative 52x CDROM Drive
- 120W Stereo Speakers
- On-board Creative PCI Sound Adapter
- Samsung 750B 17".24 Monitor +$270

Intel 815 M/B
64MB 20GB
52X CDROM

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P-III-800 978 $34.38/mo*
P-III-866 1078 $37.88/mo
P-III-933 1268 $44.88/mo

Pentium III DVD Theatre

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- 128MB PC133MHz SDRAM
- 20GB U-ATA 100 HDD
- Panasonic 1.44MB FDD
- nVidia TNT2 32M 4X AGP
- KDS VS-7i 17" Monitor
- Acer 107 Keyboard
- ATX Tower w/ 250W P/S
- Acer Wheel Mouse
- Panasonic 8X DVD Drive
- SoundBlaster Live 1024
- Altec ACS66 Spkrs+Subwfr

128 MB 20 GB
DVD 8x SB Live
KDS 17" Monitor
nVidia TNT2 32M AGP

P-III-800 1438 $50.00/mo
P-III-866 1538 $53.80/mo
P-III-933 1718 $60.00/mo
P-III-[illegible] [illegible] $57.80/mo

Pentium III CD-Creator

- Gigabyte 6VXE7+ M/B
- 133MHz FSB & U-ATA 66 Ready
- 128MB PC133 SDRAM
- 20GB U-ATA 100 HDD
- Panasonic 1.44MB FDD
- nVidia TNT2 32M 4X AGP
- KDS VS-7i 17" Monitor
- Acer 107 Keyboard
- ATX Tower w/250W P/S
- Acer Wheel Mouse
- Panasonic 8x4x32 CD-RW
- SoundBlaster PCI 128
- ML480 600W Spkrs+Subwfr

128 MB 20 GB
Panasonic 8x4x32 CD-RW
KDS 17" Monitor
nVidia TNT2 32M AGP

P-III-800 1488 $52.00/mo*
P-III-866 1588 $55.80/mo
P-III-933 1768 $61.80/mo*
P-III-[illegible] 1788 $62.80/mo*

Pentium III Dream Machine

- Asus CUV4X/ Gigabyte 6VX7-4X M/B
- 128MB PC133MHz SDRAM
- 30GB U-ATA 100 HDD
- Panasonic 1.44MB FDD
- nVidia TNT2 32M 4X AGP
- NEC FE700 17" Flat
- Acer 107 Win98 Keyboard
- ATX Tower w/ 250W P/S
- Microsoft Wheel Mouse
- Panasonic 8x4x32 CD-RW
- Panasonic 8X DVD Drive
- SoundBlaster Live 1024
- Altec ACS 66 Spkrs+Subwfr

128MB 30GB
Panasonic 8x4x32 CD-RW
NEC FE700 17" Flat Monitor
DVD 8x SB Live

P-III-800 1868 $65.38/mo
P-III-866 1968 $68.80/mo
P-III-933 2148 $75.38/mo
P-III-[illegible] 2368 $82.80/mo*

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Options. Windows98 SE / ME / 2000 Pro *+$138/148/208* • Acer 56K V/F/Modem (HW) *+$50* • D-Link 10BT Ethernet Card *+$20* • MS Office 2000 SBE / Pro *+$268/468*

AMD Thunderbird PowerMax

Thunderbird DVD Gamer

- AMD Thunderbird CPU
- Asus A7V/Gigabyte 7ZX M/B
- 128MB PC133MHz SDRAM
- 20GB U-ATA 100 HDD
- Panasonic 1.44MB FDD
- KDS V57i 17" Monitor
- nVidia GeForce2 MX 32M 4X AGP
- Acer 107 Keyboard
- ATX Tower w/ 300W P/S
- Acer Wheel Mouse
- Panasonic 8X DVD Drive
- SoundBlaster Live 1024
- ML460 600W Speakers + Subwoofer

128MB 20GB
GeForce MX 32M
KDS 17" Monitor
8X DVD SB Live

TB-800 1568 $55.00/mo*
TB-850 1598 $56.00/mo*
TB-900 1648 $57.80/mo*
TB-950 1748 $61.30/mo
TB-1GHz 1918 $63.30/mo*

Thunderbird Power User

- AMD Thunderbird CPU
- Gigabyte 7ZX Dual-BIOS M/B
- 128MB PC133MHz SDRAM
- 20GB U-ATA 100 HDD
- Panasonic 1.44MB FDD
- KDS V57i 17" Monitor
- nVidia TNT2 32M 4XAGP
- Acer 107 Keyboard
- ATX Tower w/ 300W P/S
- Acer Wheel Mouse
- Altec 52X CD-ROM
- SoundBlaster PCI 128 (O/B)
- ML460 600W Speakers + Subwoofer

128MB 20GB
GeForce MX 32M
KDS 17" Monitor
8x DVD SB Live

TB-800 1288 $45.00/mo
TB-850 1318 $46.38/mo*
TB-900 1368 $47.90/mo
TB-950 1468 $51.80/mo
TB-1GHz 1538 $53.80/mo

Power/Budget Maximizer

AMD Duron Net-Surfer

- AMD Duron CPU
- Gigabyte 7ZM Motherboard
- 64MB PC133MHz SDRAM
- 10GB Ultra66 HDD
- Panasonic 1.44MB 3.5" FDD
- ATI RageIIC 8M AGP
- Acer 107 Keyboard
- ATX Tower w/ 250W P/S
- Acer Wheel Mouse
- 48X CD-ROM
- 3D Stereo Sound (O/B)
- 120W Stereo Speakers
- Samsung 750B 17".24 Monitor +$270

64MB 10GB
48X CD 3D Stereo Sound

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D-750 728 $26.00/mo*
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Celeron Net-Surfer

- ECS Mainboard
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- 10GB Ultra66 HDD
- Panasonic 1.44MB FDD
- 3D 8M AGP Video
- Acer 107 Win 98 Keyboard
- 17" ATX Tower w/ 250W P/S
- Wheel Mouse + Pad
- 48x CD-ROM
- 3D Wave Stereo Sound
- 120W Stereo Speakers
- 56K Modem & 10/100 BaseT LAN
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64MB 10GB
56K Modem 10/100 LAN

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All Celeron & AMD systems come with 3-year service & 1-year parts warranty and one month FREE internet

Options Windows98 SE / ME / 2000 Pro *+$138/148/208* • Acer 56K V/F/Modem (HW) *+$50* • D-Link 10BT Ethernet Card *+$20* • MS Office 2000 SBE / Pro *+$268/468*

CPU/RAM

EDO 16M 72pin 2x8 / 4x4	$35/70
EDO 32M 72pin 2x8 / 4x4	$108/138
32M PC100 SDRAM OEM / Major	$45/50
64M PC100 SDRAM OEM / Major	$75/85
128M PC100 SDRAM OEM/ Major	$118/138
64M PC133 SDRAM OEM/ Major	$66/75
128M PC133 SDRAM OEM/ Major	$118/135
256M PC133 SDRAM OEM/ Major	$308/328
ECC 128/ 256M PC133 SDRAM	$188/378
Rambus 128 / 256M	$428/908
AMD CPU	
Duron 650/ 700/ 750	$108/118/148
Thunderbird 750 / 800/ 850	$210/248/278
Thunderbird 900 / 950/ 1G	$318/368/468
Intel CPU	
Celeron 600 / 633 / 667	$138/158/188
Celeron 700 / 733 / 766	$168/208/268
P-III 733 / 800 / 850	$318/328/368
P-III 866 / 933 / 1G	$408/508/798

Motherboards

AMD Socket A Motherboard	
Asus A7V	$228
Gigabyte 7ZM / 7ZX	$168/178
Gigabyte 7ZXR (ATA100/Raid)	$228
Celeron / P-III Motherboard	
Abit VL6 / SE6	$138/218
Asus CUV4X / CUBL2	$188/236
Gigabyte 6VXE7+ / 6VX7-4X	$118/138
Intel 815EEAA / 815EEAAL	$218/238
Intel VC820	$188
Intel STL2 (Dual CPU & SCSI, Video & NIC)	$818
Super Micro 370DL3 / DE6	$768/888

Drives & Controllers

Fujitsu 10.2 / 20G ATA66	$135/169
IBM (7200rpm / ATA100 IDE)	
30 / 45 / 60 / 75G	$236/318/548/718
IBM 9G U160 SCSI 7.2K / 10K	$360/398
IBM 18G U160 SCSI 7.2K/ 10K	$530/550
IBM 36G U160 SCSI 7.2K/ 10K	$880/998
Maxtor (ATA 100 IDE)	
15 / 20 / 30G 5400rpm	$155/168/188
40 / 60 / 80G 5400rpm	$238/368/468
15/ 20/ 30/ 40G 7200rpm	$168/188/230/298
Quantum (ATA66 IDE / SCSI)	
LM 15 / 20 / 30G 7200rpm	$168/190/238
9G U2W / 18G U160 SCSI	$398/588
Seagate (SCSI)	
9 / 18G U2W 7.2K SCSI	$338/488
18G U160 SCSI 10K / 15K	$555/718
36 / 74G U160 10K SCSI	$888/1838
Western Digital (U-DMA IDE)	
10 / 20 / 30 / 45G	$138/178/208/278
20/ 30/ 40G 7200rpm/ATA100	$198/248/298
Adaptec (SCSI Adapter)	
2930U / 2930U2	$138/328
29160 U160 / U160 Kit	$308/418
TekRam 315U / 390F SCSI Kit	$68/148

Tape Backup

HP Colorado 8G IDE / Para	$278/338
HP Colorado 14G IDE / Para	$338/398
Onstream 30G Ext./ Firewire Card	$448
Onstream 30G IDE / SCSI Int.	$518/688
Onstream 50G SCSI Int.	[illegible]
Onstream 30 / 50G Disc (5-pack)	$168/208
Seagate 24GB DAT SCSI Int./Ext.	$1038/1208

Scanners

Acer 640U/ 1240UT/ 2720S	$108/218/530
AGFA E20 / E40 / E50	$118/220/288
Canon 330P / N648P	$85/125
Canon N658U / N1220U	$148/178
Canon 1210U/ FS2710 (ScanFilm)	$388/738
Epson 610 / 636U / 1200U	$148/148/368
Epson 1200U Photo	$388
HP 2100C / 3300C USB	$118/138
HP 5200C / 5370C USB	$298/398
HP 5300C / 6350C USB	$625/858
Visioneer 7600 / 8100 USB	$138/188
Visioneer 8600 / 8650 USB	$248/428

CD / DVD / Sound

Acer 48x / 52x CD-ROM	$55/60
Creative 52x / Toshiba 48x	$60/78
Panasonic 8x DVD	$128
Pioneer 16x DVD	$188
Sigma DVD Controller PCI	$88
Acer 3D Wave PnP Sound PCI	$20
SoundBlaster Ensoniq/ 128 PCI	$36/50
SoundBlaster Live Value 1024	$75
SoundBlaster Live Platinum 5.1	$268
SoundBlaster Live MP3 5.1	$138
SoundBlaster Live Xgamer 5.1	$138

ZIP / JAZ / LS120

ZIP 100M IDE / Para / USB	$78/148/156
ZIP 250M IDE/ Para/ USB	$178/218/280
ZIP 100M / 250M Disc	$12/22
JAZ 2G SCSI Int. / Ext.	$398/488
JAZ 1G / 2G Disc (min 3)	$120/128
JAZ SCSI to Parallel Adapter	$48
LS120 Super FDD Int. / Ext.	$88/108
LS120 Disc	$13

Modems/WebCam

Acer 56K V.90 Voice/Fax PCI (HW)	$48
USR 56K V.90 Fax Modem SW/ HW	$46/85
3Com WebCam / Homeconnect	$78/118
Creative WebCam USB / Go	$88/108
Intel Easy PC Camera / Deluxe	$88/128
Intel Pocket PC Camera	$238
Logitech QuickCam Express USB	$88

Spkr/ Mice/ KB/ Cases

USB Adapter / Hub	
PCI to USB Card	$38
USB 4 Port Hub	$36
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120/ 280/ 600W + Subwoofer	$10/20/30
Acer ACS 33 / 45 / 54 / 48	$65/98/108/188
Altec ACS 66	$88
Creative FPS 1500/ 1800/ 2000	$108/138/148
Creative DTT 2200/ 2500/ 3500	$178/326/398
Yamaha M30 Speaker/Subwoofer	$78
Mouse	
Acer Wheel Mouse	$15
Logitech Trackman Marble / FX	$65/85
MS Trekker Wheel / Intellimouse	$18/28
MS Optical Wheel Mouse	$48
Keyboard	
Acer 107 / Fujitsu 8725	$13/20
Logitech Internet Keyboard	$36
Logitech Cordless KB & Wheel Mouse	$118
MS Natural Keyboard / USB	$32/88
Case & Fan	
ATX 18" / 16" Case & 250W P/S	$45/55
ATX 18" Case & 300W P/S	$80
Removable HDD Drawer 33/ 66	$25/35
External HDD/CD-Rom Holder	$80
Slot Fan / HDD Fan	$12/15
Golden ORB AMD CPU Fan	$18

Digital Camera/Camcorder

Canon A50 1.31M Camera	$608
Canon S10 2.1M Camera	$718
Canon S20 3.3M Camera	$888
Canon Ultura Camcorder	$1198
Epson Photo 650 Camera	$408
Epson Photo 800 Camera	$648
Epson Photo 850Z Camera	$1038
Epson Photo 3000Z Camera	$1788

Printers

Color Printer	
Canon 2100/3000/6200	$88/148/468
Canon S400/ S450 (-$30/30)	$158/218
Epson 580 / 777 / 900	$88/148/348
Epson 870 Photo / 1270 Photo	$308/678
HP 880 / 895 / 930	$148/198/298
HP 950 / 970 / 990	$368/428/548
HP 1220 / 2200 / 2500	$668/588/1358
Lexmark Z11/ 3200/ Z52	$88/128/278
Laser Printer	
Brother 1030 ([illegible])	[illegible]
Brother 1240DX / 1250DX	$438/478
Brother 1270N (Network Ready)	$748
Brother 2060 / 2060N	$1288/1618
Brother 4350 MFC	$555
Brother 8600 MFC/ 8650MFC	$748/968
Brother 2400C/ 2400CN Color	$2688/3188
HP 1100/ 2100/ 2100TN	$665/978/1468
HP 1100A/ 3150C MFC	$688/668
HP 4050/ N/ TN	$1698/2068/2288
HP 5000/ N/ GN	$2098/2358/3738
HP 8100/ N/ DN	$3788/4198/4848
HP 4500/ N/ DN Color	$3638/4198/5348
Samsung [illegible]	[illegible]
Samsung 4500C MFC	$338

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CD Writers

Acer 12x10x32	$278
HP 9150i (8x4x32)	$278
HP 9350i (10x4x32)	$328
HP 9510i (12x8x32)	$388
HP 9600SI (12x8x32 SCSI)	$448
HP 9600SE (12x8x32 Ext. SCSI)	$528
HP 8230e (4x4x6 USB)	$338
Panasonic 8432 IDE CD-RW	$218
Plextor 12x10x32 Int. IDE CD-RW Kit	$398
Sony 8432 Int. IDE CD-RW Kit	**$268**
Yamaha 16x10x40 IDE	$388
Yamaha 16x10x40 SCSI	$428
Yamaha 8824 Ext. SCSI Firewire	$518

CD-R/ RW Media

BASF/ Sony CD-R (10pc)	$9.88/13.80
8X CD-R (25/100pc)	$20/72
Princo 80min CD-R (1/10pc)	$2/18
BASF/ Sony CD-Rewritable	$2.68/5.0

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Corporate Server Centre

Intel STL2 Server

- Intel Pentium III 800/866/933/1GHz CPU
- Intel STL2 Server Board (support Dual CPU & RAID)
- 128MB PC133 ECC SDRAM
- IBM 18GB U160 SCSI Hard Drive
- On-board Adaptec Dual Channel 1x U160, 1x UW SCSI Controller
- O/B ATI RageIIC 900 Video Adapter
- On-board EtherExpress Pro 100+ LAN Adapter
- Creative 52X CD-ROM
- Panasonic 1.44MB Floppy Drive
- Samsung 550S 15" SVGA Monitor
- 107-key keyboard & Wheel Mouse
- Intel SC5000 Server Tower

PIII-800 $2898
PIII-866 $2998
PIII-933 $3198
PIII-1GHz $3398

Intel 815E Workstation

- Intel Pentium III 800/866/933/1GHz CPU
- Intel 815EEAAL MotherBoard
- 128MB PC133 SDRAM
- 20GB ATA100 Hard Drive
- On-board Intel Graphics Adapter
- On-board EtherExpress Pro 100+ LAN adapter
- On-board Creative PCI Sound Adapter
- Creative 52X CD-ROM
- Logitech Internet keyboard
- Microsoft Intellimouse
- 280W Stereo Speakers
- Panasonic 1.44MB Floppy Drive
- ICI 17" ATX case w/250W P/S
- NEC FE700 17" Flat Screen Monitor

PIII-800 $1468
PIII-866 $1568
PIII-933 $1748
PIII-1GHz $1968

Intel Linux Net Server

Complete Server Solution
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- Website hosting (Intranet w Extranet)
- E-mail server: manage company e-mail
- Fax server: send and receive faxes
- File server: share large files easily
- Browser based setup: zero effort maintenance

Hardware Solution
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- 64MB PC133 SDRAM
- 20 GB U-ATA 100 Hard Drive
- 1.44MB FDD & 48X CD-ROM
- ATI 900 RageIIC AGP Video
- 18" ATX Tower
- Dual 10/100 Ethernet card

Software Solution
- Nowlix Server
- 25 client license

$1338
$46.66/mo

NoteBook / Mobile Solution

IBM

i1210	C-500	32M	6G	12.1HPA	24X	56K	$1448
i1230	C-500	64M	6G	13HPA	24X	56K	$1548
i1250	C-500	64M	6G	12.1TFT	24X	56K	$1638
i1500	C-500	64M	12G	12.1TFT	24X	56K	$1698
A20m	PIII-500	64M	6G	12.1TFT	24X	56K+LAN	$2698
A20m	PIII-700	64M	12G	14.1TFT	24X	56K+LAN	$3638
T20	PIII-650	128M	6G	13.3TFT	24X	56K+LAN	$3738
T20	PIII-700	128M	12G	14.1TFT	DVD	56K+LAN	$4448
A21p	PIII-850	128M	32G	15TFT	DVD	56K LAN	$6288

Acer

280DX	C-550	32M	5G	12.1HPA	24X	56K	$1598
200T	C-650	64M	5G	12.1TFT	24X	56K	$1998
521TE	PIII-600	64M	6G	13.3TFT	24X	56K	$2388
521TXV	PIII-600	64M	6G	14.1TFT	DVD	56K	$2848
602TER	PIII-600	64M	12G	13.3TFT	CDRW	56K+LAN	$3188
602TER	PIII-650	128M	12G	13.3TFT	CDRW	56K+LAN	$3388

Fujitsu

S4150	C450	128M	6G	14.1TFT	24X	56K	$2488
E6560	PIII-650	64M	15G	14.1TFT	DVD	56K	$3388

HP HANDHELD PC

HP Jornada 540 (16M)/ 548 (32M)	$598/728
HP Jornada 680 (16M/56K)/690 (32M/56K)	$1088/1198
HP Jornada 720 (32M)	$1298

3Com

PalmPilot IIIe/ IIIxe/ IIIc	$218/348/488
PalmPilot V/ Vx	$438/548

TOSHIBA

4330	C-650	64M	10G	14.1TFT	DVD	56K	$3148
3440CT	PIII-500	64M	6G	11.3TFT	DVD	56K	$3018
4280Xcdt	PIII-450	64M	12G	14.1TFT	DVD	56K	$3168
2800	PIII-650	64M	12G	14.1TFT	DVD	56K	$3528
7220CTE	PIII-650	64M	12G	13.3TFT		56K	$4168
8100	PIII-700	128M	12G	14.1TFT	DVD	56K	$4798

NoteBook Add-On's

PCMCIA CARD

Adaptec 1350 Mini SCSI Parallel Port Kit	$98
Adaptec 1460D/1480A SlimSCSI Kit	$170/245
DLink 56K + 10/100	$288
Intel Pro100 LAN CardBus (Realport)	$188
Intel Pro100 LAN+56K Modem Cardbus Realport	$298
Linksys Ethernet PCMCIA 10BT/ 10/100BT	$78/98
MegaHertz 3CCFEM556 56K Modem+10/100	$308
Xircom Realport 56K V.90 + 10/100 BT	$308

PORTABLE FD, CD-ROM & CD-WRITER

Trillium External USB Floppy	$128
HP 8230e 4x4x6 USB CD-Writer	$338
Micro Solution Bantam 24X CD-ROM	$218
Micro Solution Bantam 24X CD w/Sound	$268
Micro Solution 4X4X24 CD-Writer/Dualport	$388/398

NOTEBOOK MEMORY & HDD & CASE

32/ 64/ 128M	$80/120/238 & up
IBM 6/ 12/ 18/ 25GB 2.5" HDD	$248/348/525/708
Toshiba 6/ 12/ 20GB 2.5" HDD	$308/288/388
Targus Notepac CN01/CN20	$41/30

Display Centre

Video Card

3D Labs Oxygen VX1 32M AGP	$278
Asus 6600 GeForce 32M Deluxe	$228
Asus 6800 GeForce 32M DDR Deluxe	$288
Asus GeForce 64M Pure / DDR	$250/388
Asus V7100 GeForce2 MX 32M	$208
Asus V7700 GeForce2 32M DDR/TV	$378
Asus V7700 GTS DDR 32M / 64M	$318/408
ATI Rage 3D 8M/ Xpert2000 32M AGP	$48/108
ATI Rage Fury 32MB / 32MB Pro	$148/160
ATI Rage Fury MAXX 64MB 4xAGP	$188
ATI Radeon 32MB/ All-In-Wonder	$338/408
ATI Radeon 64MB DDR / VIVO	$408/438
ATI All-in-wonder 128 Pro 16M/ 32M	$208/268
Creative GeForce2 GTS 32M	$308
Matrox Millennium G400 16M / 32M	$148/188
Matrox G400 32M Dual Head/ Max	$228/268
Matrox G400 TV 16M	$398
Voodoo3 2000/3000/3500 16M	$118/148/268
Voodoo5 5500 64M 4x AGP	$428

LCD Panel

NEC 1525V / 1525M 15"	$1088/1268
NEC 1525X / 1525S 15"	$1388/2388
NEC 1810-1 18" / 2010-1 20"	$3968/5555
Panasonic LC50 15"/ LC90S 18"	$1550/5878
Samsung 570S / 570B (-$100)	$1218/1328
Samsung 770TFT / 800TFT (-$200)	$2288/3688
Samsung 150MP / 170MP (-$200)	$1588/2698
Viewsonic VG 150 / VP 150M 15"	$1298/1515
Viewsonic VG 151 15" (Digital/Analog)	$1438
Viewsonic VG 181 18" (Digital/Analog)	$3738
Viewsonic VP 181 18" (Digital/Analog)	$4298

Monitors

AOC 7Glr .25 17" / 9VLR .26 19"	$268/378
NEC DP91 / DPro 900U 19"	$678/888
NEC DP200U / DPro 2040U 22"	$1298/1598
NEC AS70 17" / AS90 19"	$288/408
NEC AS75F 17" / AS95F 19"	$360/520
NEC FE700 / FE700M / FE750 17"	$378/448/478
NEC FE950 19" / FE1250 22"	$618/1198
NEC FP950 19" / FP1350 22"	$788/1338
Panasonic 17" SL75	$348
Samsung 550S 15"/ 750S 17" .27	$198/268
Samsung 753DF 17" .20 1280x1024	$378
Samsung 700IFT 17" .20 1280x1024	$438
Samsung 700NF 17" .25 1600x1200	$448
Samsung 955DF 19" .20 1600x1200	$538
Samsung 900NF 19" .25 1600x1200	$608
Sony E200/ G200	$518/578
Sony 19" E400 / G400	$698/788
Sony E500 / G500 / F500	$1438/1528/2468

Viewsonic Monitors

E771	17"	.27mm	1280x1024	$318
E773	17"	.25mm	1280x1024	$378
EF70	17"	.25mm	1280x1024	$388
G773	17"	.26mm	1280x1024	$388
PF77	17"	.25mm	1600x1280	$548
PF775	17"	.25mm	1600x1280	$478
PS775	17"	.25mm	1600x1280	$468
E790	18"	.26mm	1600x1280	$518
GS790	18"	.26mm	1600x1280	$598
PF790	19"	.25mm	1600x1280	$678
PF795	19"	.25mm	1920x1440	$828
P810	21"	.25mm	1600x1280	$1198
P815	21"	.25mm	1800x1440	$1288
PF815	21"	.25mm	1920x1440	$1298

Network Products Centre

Intel Product Line

Wireless Networking

Intel 11Mb PC Adapter w/ AnyPoint Suite	$178
Intel 1 Mb USB Adapter w/ AnyPoint Suite	$168

Network Adapter

Intel 8460B 10/100 Management Adapter	$68
Intel 8470B 10/100 Server Adapter	$135
Intel 84T20 10/100 Dual-Port Server Adapter	$286
Intel 8490 Gigabit Server Adapter	$828

Hub & Switch

Intel In-Business SH10T5 5 Port Hub (10BT)	$64
Intel In-Business SH10T8 8 Port Hub (10BT)	$77
Intel In-Business SH100TX4 4 Port Hub (10/100)	$115
Intel In-Business SH100TX8 8 Port Hub (10/100)	$168
Intel In-Business SS101TX4 4 Port 10/100 Switch	$148
Intel In-Business SS101TX8 8 Port 10/100 Switch	$288
Intel In-Business SH101TX16 16 Port 10/100 Hub	$538
Intel Express 330T Stackable 16 Port Hub (10/100)	$798
Intel Express 330T Stackable 24 Port Hub (10/100)	$1088
Intel Express 110T Standalone 16 Port Switch (10/100)	$688
Intel Express 410T Standalone 24 Port Switch (10/100)	$1138
Intel Express 460T Standalone 16 Port Switch (10/100)	$1338
Intel Express 460T Standalone 24 Port Switch (10/100)	$1618
Intel Express 520T Scalable 12 Port Switch (10/100)	$1668
Intel Express 550T Scalable Routing Switch	$2688

Printer Server

Intel Netport Express 10/100 Ext. Printer Server 1 Port	$308
Intel Netport Express 10/100 Ext. Printer Server 3 Port	$438
Intel InBusiness Printer Station 10/100 2 Port	$228

InBusiness Station

Intel InBusiness Storage Station 30G/40G	$1248/1798
Intel InBusiness Small Office Network Station *(8 port Hub / 13G Storage & Backup / E-Mail / Firewall / Printer Server)*	$1798
Intel InBusiness Small Office Network Plus Station *(same as above with additional 13G for mirroring)*	$2468

Virtual Private Network

Intel Shiva VPN Gateway Express	$5878

3COM & D-Link

Network Adapter

3COM 3C905B-TX 10/100 PCI Adapter	$82
Acer 10BT Combo / 10/100 PCI Adapter	$18/25
D-Link 528CT 10BT/ 530TX+ 10/100 PCI	$18/25

Home/Office Network Kit

D-Link DFE-906 4 Port 10/100 Hub/2xNIC/2xCable	$158
Linksys 5 Port 10BT Hub/2xNIC/2x cable	$88
Linksys EtherFast Cable/DSL Router (1 port)	$188
Linksys EtherFast Cable/DSL Router (4 port) (Built-in 4-Port 10/100 switch, Firewall & Single IP Address Feature)	$288

10 BaseT Hubs

3COM 3C16700 5 Port Hub	$68
3COM 3C16440 SS 1 Entry Hub 12 Port	$200
3COM 3C16441 SS 1 Entry Hub 24 Port	$300
3COM 3C16700 OfficeConnect 8/TPO	$98
D-Link DE-805TP/C 5 Port Hub	$60
D-Link DE-809TP/TC 9 Port Hub	$55

100Mbps Hubs & Switches

3COM 3C16750 OfficeConnect 8 Port 10/100BT	$168
3COM 3C16751 OfficeConnect 16 Port 10/100BT	$388
D-Link DSH-5 10/100 5 Port Hub	$88
D-Link DSH-8 10/100 8 Port Hub	$150
D-Link DSH-16 10/100 16 Port Hub	$268
3COM 3C16951 SS I 10 Switch 1100 12 Port	$850
D-Link DSS-8+ 8 Port 10/100 Switch	$168
Netgear DS108 8 port 10/100 switch	$148

APC Power Protection

BackUPS 300 / 500 / 650M	$125/182/249
BackUPS Pro280M/ 350/ 420/ 650	$180/208/285/388
BackUPS Pro 1000 / 1400	$535/688
SmartUPS SU420 / SU620 / SU1000	$318/408/718
SmartUPS SU1400/ SU2200/ SU3000	$838/1258/2058

Network Cables

10/100 BaseT Cable 10/25/50/100ft	$6/15/25/38
10/100 BaseT Cable Bulk per ft / per 1000ft	$.25/158
Crimping Tool RJ45 / BNC	$25/30
Multi-Network Cable Tester	$80

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Mac wish list 2000

Gift ideas for the Apple of your eye

By Justin Siemens

Around $50

Apple Mac OS X Beta
From: Apple Canada
Price: $45

If you have a Mac fan on your list who hasn't tried out this beta yet, they will love it. For only $45 they not only get a whole new operating system to play with, but a new email client, Web browser, MP3 player, and many more goodies. The only downside is they need a G3 or better processor.

SoundJam MP 2.5.1
From: SoundJam
http://www.soundjam.com/
Price: US$39

MP3 is in this season, and although its playback quality tends to be disappointing on a full-blown home stereo, it sounds great on a computer, and MP3 files are handy when you want to take a lot of music with you on the road or listen to hours of tunes while you work without changing discs. SoundJam lets you create MP3s from CDs or audio inputs, so you can hook up a record player, for example, and create digital files from your old LPs. SoundJam also supports customizable skins, a full equalizer, and support for multiple playlists and streaming MP3s. It's available as a direct download or boxed copy.

Four-port USB hub
From: various sources
Price range: $40 to $60

Serial is out, USB is in. So what happens when you have a PDA, printer, scanner, digital camera, game pad and Zip drive? As most computers only have two USB ports, a USB hub is the answer. Hubs are easy to find, come in lots of cool colours, and all work the same so you don't need to worry about the brand. They are the perfect gift for Mac users who have it all.

ToyStory/ToyStory 2 DVD
From: Pixar/Disney
Price: $40

If you know someone with a DVD player in their Mac, then they need this two-DVD set. Both animated films were created entirely on computer by Steve Jobs' other company, Pixar Animation Studios. The DVDs are transferred from the original digital masters to create the best picture quality possible. Also, and more importantly, the movies are loads of fun for kids and adults, and unlike VHS your kids can watch them over and over without wearing them out.

Under $100

The Sims
From: Aspyr Media
http://www.aspyr.com
Price: $80

It's fun, it looks great, and it's more addictive than Tetris. It runs on most new Macs, from an iMac up, and is appealing to gamers and non-gamers alike. Players create a Sim family deciding on every aspect of their lifestyle, from career path to friends and spouses, and deal with expected and unexpected consequences of those choices. The Sims expansion pack Living Large may be out in time for Christmas, so it would be a good bet for those who already own The Sims.

Optical mice
From: Various sources
Price range: $60 to $100

Optical mice are more accurate, require less maintenance and work on almost any surface. They are quickly becoming a must-have peripheral. A year ago the only game in town was Microsoft's huge, right-hand only IntelliMouse Explorer. Now there are two options from Microsoft, one from Apple, and one from Logitech. The most popular are Apple's Pro Mouse and Microsoft's IntelliMouse Optical. The Apple Pro features a single large button and a very slick industrial design, in clear and grey (Graphite) plastic, that coordinates better with new Apple hardware than Microsoft's offering. However, the IntelliMouse Optical, which is smaller than the original Explorer and works in both left and right hands, features four buttons and a scrolling wheel. Those who have used a scrolling wheel should consider the IntelliMouse. Those who like the classic single button Mac mice should stick with Apple's Pro Mouse.

Continued on page 51

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An encyclopedia in every stocking

Remember those leather-bound tomes your parents purchased in the hope they would help your school work and maybe get you out of their basement before you turned 30? They've gone digital.

By Tom Venetis

The problem with encyclopedias of old was that once they were printed, much of the information they contained was already out of date. Sure, the periodic table doesn't change from year to year but it's a bit odd to come across the entry on Canada that still has Pierre Elliot Trudeau listed as our prime minister.

The problems associated with updating began to resolve themselves when encyclopedias moved onto CD-ROMs, and now DVD-ROMs. Being tied into the Internet, many CD-ROM based encyclopedias can now access updated information automatically while at the same time linking to the latest articles and Web sites on specific topics.

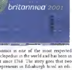
The move to digital formats has had benefits for readers too. You no no longer have to set aside a good chunk of shelf space for the 30 volumes of *Encyclopedia Britannica*, as a couple of CD-ROMs will now hold all of that information.

The Computer Paper decided to look at several of the most popular CD-ROM-based encyclopedias on the market: Microsoft's Encarta, Encyclopedia Britannica, IBM's World Book and McClelland & Stewart's Canadian Encyclopedia.

To compare them, we looked at how quickly we could find information, the quality of that information, its readability, and any useful features that make organizing research easier and quicker.

However, the most important criteria was how well these encyclopedias presented Canadian information and history. One criticism of some of the most popular encyclopedias is that they give short shrift—or no coverage at all—to non-American topics, making it frustrating for Canadian students.

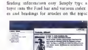
Britannica 2001
CD-ROM Encyclopedia
From Encyclopedia Britannica Inc.
http://www.britannica.com
Price $75 (rebate may be applicable)



Britannica is one of the most respected encyclopedias in the world and has been in print since 1768. The story goes that two entrepreneurs in Edinburgh hired an editor to put together all of the new information and knowledge that was then being revealed through exploration and scientific discovery. That editor came up with a three volume compendium that was the first *Encyclopedia Britannica*.

While the old print version became the standard that many encyclopedia publishers emulated, Britannica was a late-starter in the CD-ROM revolution. But what it may have lost in terms of time, it has made up for with a CD-ROM reference that remains true to Britannica's long history of presenting topics in well-organized, well written and informative articles.

The Britannica CD-ROM has a clean interface that allows for quick access to all of its features, including its Spotlight, Timelines, Compass, and Research Assistant. A Web-like look and feel makes finding information easy. Simply type a topic into the Find bar and various indexes and headings for articles on the topic appear on the left side of the screen. Clicking on a heading or index takes you directly to an article. All of the articles have hyperlinks that connect them to a variety of related articles or subjects elsewhere in the Britannica.



As an example, the entry on Canada's Constitution connects you to a variety of other topics such as the history of constitutions around the world, or its American counterpart. An article on the philosopher Martin Heidegger not only gives a good summary of his ideas and complex terminology, it connects to extensive articles on existentialism, phenomenology and related philosophers. This makes the encyclopedia useful for students doing research, as it is important to put information in larger contexts.

An especially welcome feature is the ability to connect directly to Britannica.com for access to updated information or current articles on any subject.

The Research Assistant is especially handy in organizing the often overwhelming amount of information that can be produced when looking up a subject. This tool allows you to create folders to organize the information and attach notes or bookmarks to specific articles.

In terms of Canadian content, Britannica was pretty good. Subjects like the Canadian Constitution and the recently deceased former prime minister Trudeau were covered well, often with links to other relevant information. It had generally solid entries for Canadians you might not expect to be well known beyond our borders. The entry on Sir Sanford Fleming—the "father of standard time" and head surveyor for the Canadian Pacific Railway—covers his accomplishments well and connects to a good article on standard time.

Continued on page 49

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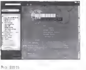
An encyclopedia in every stocking

Continued from page 46

Encarta Reference Suite 2001

From Microsoft Canada Co
http://www.microsoft.com/encarta



Price $99.95

When Microsoft first released its Encarta encyclopedia, it was criticized for the quality of the material and its U.S. centric focus.

With its 2001 version, Microsoft has gone a long way toward correcting some of those problems, particularly with the addition of more Canadian content and articles. It also comes with a load of extra goodies such as an interactive world atlas, a dictionary that includes up to date information on Internet and Web lingo, and Encarta Africana, a two-disc encyclopedia of African history and culture worldwide.

Like the Britannica, Encarta is easy to navigate and offers quick access to information. It also links to the Web to update the content and links to relevant Web sites and articles recommended by Encarta editors. As an example, if you look up a director or movie, Encarta will provide links to relevant sites like the Internet Movie Database.

One of Encarta's most welcome features is its supplementary materials and documents. A search for information on the Canadian Constitution will find a very detailed and well organized history of our ongoing constitutional debates. In addition to well researched and informative sections on the Quebec Act of 1774 and the Constitution Act of 1867, Encarta also provides the texts of these documents—a useful feature for students.

This supplementary material also came in handy when looking at the life of Trudeau. Encarta provided an archive of supplementary articles that placed his accomplishments and difficulties into a wider historical context. One article detailed the May 22, 1979 election in which Trudeau and his Liberals lost power, and the political and economic events that resulted in the fall of the subsequent minority Conservative government, led by former prime minister Joe Clark.

Like Britannica, Encarta allows users to organize information—found in Encarta or online—with its own research tool, in this case Encarta Researcher. The researcher is actually part of a suite of tools called the Homework Center that teaches students how to research a paper, organize information, and use the Web. It even has tips for parents on helping their kids with homework.

Encarta does suffer from some rather strange editorial choices, though. One of the oddest: a search for articles on influential jazz pianist Bill Evans turned up a single audio clip and a brief mention of his work with Miles Davis, whereas middle of the road saxophonist Kenny G—who is not even in the same league as Evans (at least in this reviewer's opinion)—was given a full article!

World Book Millennium 2000

From IBM Canada Ltd
http://www.pc.ibm.com/us/software/wb/
Price $59

IBM World Book Millennium 2000 is a good reference solution for those who need to get information and facts quickly.

While not as in depth or detailed as either the Britannica or Encarta, World Book does offer several advantages. Since its articles tend to be concise, they are ideal for fact checking, or for quickly getting a handle on historical persons or events.

Entries on Trudeau, for example, include a well-organized basic biography, listing key governments posts he held before becoming prime minister, key events during his time as prime minister, and some of the controversies that swirled around him.

However, the World Book comes up short when you want more depth. As an

Continued on page 52

Gift ideas for the Linux geek

Continued from page 32

connect the PCs on the network, PCI network cards (for example the SMC EZ, around $40); and network cables ($10 or so a pop) to fill out the rest. If he or she is still dialing into the Internet via telephone, give the gift of cable or ADSL high speed services.

Miscellaneous

Other gift ideas? Mice have a way of dying. Give your Tuxhead a nice new Logitech mouse with a scroll wheel. Logitech devices come with PS/2 *and* serial adapters to fit any system. Is using a scroll wheel too radical at your site? Then substitute a Logitech three-button mouse. Logitechs range from $20 to $60, depending on the bells and whistles, and are available in most office supply stores.

Is your Linux geek into gaming? How about a Voodoo5 video card. This one will set you back $500.

One final suggestion. If the person you're buying for has to dual boot all the time to able to run Microsoft products due to onerous workplace obligations, then surprise him or her with a copy of VMWare for Linux, a software product that allows you to run virtual computers.

That's right, Linux and Windows at the same time with no dual booting. The price is US$299 (US$99 for students and hobbyists) and you need a PC with a healthy amount of RAM (128 MB minimum) and a fast processor (400 Mhz or faster recommended). Buy online at http://www.vmware.com.

Happy holidays from the Penguins! Next year: world domination. ❑

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Acer 48x UDMA CDROM Drive
3D PCI Stereo Sound Card
17" CSA Approved P/S Tower Case
104-keyboard / 120W Speakers
56K Int. Voice Fax Modem

$1,199 Lease $45/mo

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Model #BIP3800I2C

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Quantum 20GB UDMA 7200rpm H.D.
nVidia GeForce 2MX AGP, 32MB
Creative 52x UDMA CDROM Drive
NEC 17" FE700 SVGA Monitor **.25mm**
Sound Blaster PCI 128 Sound Card
17" CSA Approved P/S Tower Case
104-keyboard / 120W Speakers

$1,699 Lease $64/mo

Financing Available

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Model #BIP31GI2C

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Maxtor 30GB UTA100 7200rpm H.D.
Asus V7100 AGP Video, 32MB
Panasonic 8x4x32 CD-Rewriter
Sound Blaster Live Value Sound Card
AltecLansing ACS54 4 Speakers w/sbwf
Microsoft Internet Keyboard
17" ATX Tower Case / Monitor Extra

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- 1.44MB Floppy
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- On-board Intel 815 Chipset Video
- Creative **52x** CDROM Drive
- On-board EtherExpress Pro 100 LAN Adapter
- **17" ATX Tower Case** w/250W P/S
- Microsoft Internet Keyboard
- Microsoft Intellimouse

BesTop Server System $2,995

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- On board Ultra160/Ultra2 SCSI Controller
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Samsung 17" 750S .27mm	$269
Samsung 17" 753DF .20mm	$329
Samsung 17" 700NF .25mm	$429
Samsung 19" 900NF .25mm	$655
Samsung 15" 570S LCD	$1349
Sony G200 17" .25mm	$569
Sony E400 19" .25mm	$715
Viewsonic 17" E771 .27mm	$315
Viewsonic 17" EF70 .25mm	$399
Viewsonic 19" E790 .26mm	$505
Viewsonic 19" PF790 .25mm	$679
Viewsonic 21" P810 .25mm	$1156

Scanner

Acer 640U	$95
Canon 340P	$69
Canon 640P / 650U	$119/149
HP 3300C / 3400C	$149/185
HP 5300C / 6300C	$399/1149
Epson 1200U Photo	$385

Hard Drive

Fujitsu 10GB Ultra DMA	$129
Fujitsu 20GB Ultra DMA	$166
Maxtor 15G / 20G	$145/165
Maxtor 30G / 40G	$189/239
Maxtor 15G/20G 7200rpm	$159/185
Maxtor 30G/40G 7200rpm	$229/309
Quantum 15GB LM 7200rpm	$150
Quantum 20GB LM 7200rpm	$189
Quantum 30GB LM 7200rpm	$239
IBM 60 / 75GB 7200rpm	$525/685

Backup Device

Acer 8x4x32 CDRW	$189
Panasonic 8432 CDRW	$199
Sony 8432 CD Rewriter	$229
HP 9150i 8x4x32 CDRW	$279
HP 9310i 10x4x32 CDRW	$339
Yamaha 8824 CD Rewriter	$249
Zip Drive Int.IDE 100/250M	$79/148
Zip Disk 100 / 250MB	$13/22
120MB Super Floppy	$99
LS 120 Disk	$11

Printer

Brother HL 1030 Laser	$275*
Brother HL 1240DX	$430
Brother HL 1250DX	$499*
Brother HL 1270N Laser	$699
Brother MFC-4350	$349
Brother MFC-7150C	$425
Brother MFC-8800	$699
Brother MFC-9800	$919
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Canon 2100/ 3000 USB	$99/149
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HP 2100 Laser Printer	$999
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* After Rebate

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ATI Radeon DDR w/TV 64MB	$449
ATI All-in-wonder Radeon 32MB	$399
Asus V6800 GeForce 64MB	$265
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Asus V7700 GeForce-2, 32MB	$409
Matrox G400 D/H, 32MB	$219
nVidia GeForce-2 MX w/TV,32MB	$189
3Dfx Voodoo3 3000 w/TV 16MB	$139
3Dfx Voodoo5 5500 AGP 64MB	$419

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SB Ensoniq 128	$35
SoundBlaster 128 PCI	$56
SoundBlaster Live value	$75
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GNT 5000A w/subwoofer	$59
Altec Lansing ACS 33 w/sbwf	$65
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Acer 56k Ext. Modem	$95
USR 56K PCI Voice V90 (Win)	$55
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All advertised prices reflect 3% cash discount. 2 years parts & labour depot warranty on all systems. All prices are subject to change without notice. All items are based on availability. Not responsible for typos.

Mac wish list 2000

Continued from page 44

Ed. Note: At press time, Microsoft Canada released a third optical pointing device: the Microsoft TrackBall Explorer. It uses the same optical technology as the optical mice noted above and has programmable forward and back buttons. Trackballs are ideal for small desktops, where there is no room for mice to roam. However, like Microsoft's original IntelliMouse Explorer, this model is only available for the right hand. Sorry southpaws!

Under $500

iSub

From: Apple Canada
Price: $149

For those with slot-loading iMacs, the iSub will significantly enhance the built-in audio, adding more power and deeper bass. It's perfect for people who listen to a lot of music—MP3 files and CDs—on their iMacs, or serious gamers. The iSub requires System 9.0.4 and an available USB port.

Photo printers

From: Epson, Hewlett-Packard, and others
Price range: $400 to $500

Now that more people own digital cameras there is an increased demand for high-quality colour printing. Two of the best photo printers for USB-enabled Macs are the Epson Stylus Photo 870 and the HP DeskJet 950C. Both are can produce up to 8.5x14-inch prints, with results (using photo paper) that are almost indistinguishable from photo lab output. If you want to make larger (11x17-inch) prints, wide format versions of both printers are available for about $200 more.

Visor Deluxe

From: Handspring
Price: $400

It works like a Palm handheld but ships with a USB cradle, and comes in five iMac-like colours. If you're considering buying a PDA, the Palm OS currently features the most available apps and the largest installed base. The Visor Pro includes Palm OS 3.5, 8 MB of RAM for storage, and runs on AAA batteries.

Over $1,000

FireWire CD-RW

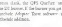
From: various manufacturers
Price range: $500 to $700

CD-RW (rewriteable) is fast replacing Zip and Jaz as the solution for large-capacity backup and file transfers.

But there are so many other cools things you can do with it, like backing up old LPs onto CD and creating multimedia presentations that will play on almost any Mac with a CD-ROM drive.

Since almost all new Macs have FireWire, we recommend a FireWire-enabled burner over a USB model, because it will burn CDs up to four times faster.

Most FireWire burners are in the 8x to 12x range, and can rewrite CDs in the 4x range. The most popular models are the Sony Supressa iLink, the QPS QueFire, and the LaCie D2 burner. If the burner you get doesn't include Adaptec Toast software, it is a worthwhile addition.



Canon Digital Elph

From: Canon
http://www.canon.ca
Price: $850

Digital cameras are a popular gift this year now that the prices are well under $1,000 and the resolution has improved significantly. The Digital Elph takes 2.1-megapixel images—a resolution suitable for good quality 8x10-inch prints.

It also features USB for easy connection to the Mac, and Adobe PhotoDeluxe software to help you edit and enhance your photos. Most importantly though, this camera is tiny, allowing you to pop it in your pocket and take it everywhere.

Also, it has a metal case, so it can withstand a fair amount of abuse.

The small size and great design will appeal to the iMac crowd, and it offers the quality to replace a standard film-based point-and-shoot camera.

G4 Cube

From: Apple Canada
http://www.apple.com/ca/powermaccube/
Price: $What price beauty?

For those who want to go all out, here is the gift to end all gifts and instill envy in all those who see it.

Featuring a 450 Mhz G4 processor, 64 MB RAM, a 20 GB hard drive, and DVD player all in an 20 cm (8 in.) cube, the G4 Cube is the coolest and most original design to come out of Cupertino, Calif., since the original iMac in 1998. It will set you back $2,700 (depending on configuration)—plus an extra $750 for the matching 17-inch display—but if you're gonna go all out why not do it with class.

This Mac is perfect for all sorts of work, including digital video editing and desktop publishing.

If you get the optional ATI Radeon card from the Apple store, it's also one of the fastest gaming Macs around. ❑

The Chocolate Lover's Web site

MB—The Chocolate Lovers' Web page contains a database of 776 Web sites where people can find chocolate around the world.
http://chocolate.scream.org/

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Continued from page 49

example, the October Crisis—a defining moment of Trudeau's leadership—is dealt with in a two paragraph summary that is part of the larger article on Trudeau.

The same goes for finding information on the Constitution. Compared to the detail of the Britannica or Encarta, World Book gives only a short overview that is part of a larger article on the federal government.

Even famous Canadian artists are rather perfunctorily treated or not mentioned at all. While Margaret Atwood gets a short mention, filmmakers David Cronenberg and Atom Egoyan are not listed.

The World Book does a bit better with its Map feature, offering street-level data.

A nice feature that comes with the World Book is a Homework Wizard. Like Encarta's Homework Center, it gives students a step-by-step guide for creating reports, charts, timelines, or quizzes.

The World Book is also available in single disc Standard Edition, or a three disc Premium Reference Library.

The Canadian Encyclopedia 2000

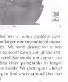
From McClelland & Stewart
http://[illegible]
Price $59.99

This has been one of the best sources for Canadian information and history on CD ROM for some time, going beyond what Britannica and Encarta offer.

By the time you read this, the 2001 version of the Canadian Encyclopedia will be released. At the time of this review, we were unable to obtain a copy so we looked at the current 2000 version.

This edition has additional CD-ROMs devoted to the Prime Ministers of Canada, the War of 1812, the Klondike Gold Rush, Masks and Cultures of the Pacific and the Parliament Buildings—the latter takes users on a QuickTime VR tour.

However, it was not possible to review the encyclopedia part of this package as we could not get it to work correctly on two different machines, a Windows 98 Acer TravelMate 3401 notebook or a PC running Windows 95. In each case the program froze on the highlight feature and it took a while to figure out how to shut it off.



But that was a minor problem compared to the larger one encountered immediately after. We soon discovered it was impossible to scroll down any of the articles as the scroll bar would not appear—so only the first three paragraphs of longer entries were visible! We spent quite a bit of time trying to find a way around this but to no avail.

We hope this was just a glitch in the copy we received and does not reflect a general flaw, but it did make reviewing this encyclopedia frustrating. We can add that we have looked each version of this product and have always recommended it for its unique Canadian content. The 1999 version exhibited none of the problems we encountered with the more recent compilation.

The encyclopedia is also available in a Student Edition for $34.99, or World Edition for $89.99. ❑

AdCritic.com: Where ads are art

NB—AdCritic.com was created for those who find advertising more than just an annoyance between TV shows. As well as providing services for advertising agencies, the site is aiming to build a resource that contains practically any ad seen on TV in the U.S. Visitors will be able to vote on each ad, comment on them and discuss the underlying messages.

http://www.adcritic.com/

Celebrating musicals that flopped

NB—This Web site features musicals that flopped big time on Broadway. As well as looking back on old flops (and telling visitors where they can buy memorabilia in North America and Europe), the site tips some upcoming flops. Top of the pile to watch recently was an American musical version of the British movie, *The Full Monty*, in which the setting is changed to Buffalo, NY.

http://www.lostmusicals.com/

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La plume de ma tante

Microsoft Encarta delivers introduction to conversational French

The best way to learn a language is to be taught it as a baby, by your mother and father and the rest of your family

The next best way is to live with someone who speaks another language, learning that language as you learn about that person. The third best way Microsoft would have us believe, is to use the Encarta Language Learning series of software

Microsoft Encarta Language Learning French Deluxe
From Microsoft
http://www.microsoft.com/encarta
Minimum system requirements 166 MHz Pentium processor (or AMD equivalent) Microsoft Windows 95/98/2000/Me/NT Workstation 4.0 (service pack 3.0) 32 MB of RAM (64 MB for 2000 Pro/Me/NT Workstation 4.0) 160 MB of available hard drive space 12x CD ROM drive, 800x600 graphics display 16-bit colour 1 MB video RAM 16-bit compatible sound card with audio line in and Internet access
Estimated street price $75 (deluxe) $45 (standard)

Microsoft's Encarta Language Learning French Deluxe is the top end version of its French language training software

Canadian users of this product should be aware that this software is aimed at helping the user gain basic conversational proficiency and some cultural background in European French dialect and culture, not Quebecois French.

The French Deluxe package consists of four CDs, including two audio CDs and two CD ROMs a microphone headset, and a 240 page workbook. The total package offers a wide range of techniques to present French language and culture, including PC-based interactive multimedia "virtual conversations," audio CD examples and practice (which can be used without access to a PC), Internet chat options, and written workbook exercises

French Deluxe is aimed at beginners in the French language, and much of the content seems appropriate for preparing for a vacation or business trip to France. Considerable attention in the exercises is given to common traveler requirements such as introductions, asking for directions, ordering meals buying and selling, discussing cultural attractions recreation and travel

There are 10 interactive learning units that step the French Deluxe user through conversations on everyday topics

This concrete functional orientation to learning French (as opposed to a theoretical, literary and grammatical approach) is reinforced by an immersive, situational approach to the learning exercises

Digital video footage provided with the program provides simulated 3D virtual challenges where the user interacts with French speaking characters, simulating the incentive to learning that comes from trying to communicate with a real person

Specific French language and conversational skills are practiced in 360 listening speaking, practice and vocabulary activities

Microsoft also runs an online chat room with other French learners at http://www.encarta.com/languages, where French Deluxe users can practice with each other

For the more serious learner, there are online reference materials including a glossary with correct audio pronunciations, and lists of rules for punctuation and correct grammar

French Deluxe makes good use of just about all the aids that multimedia technology permits, to make an introduction to French engaging and simple

To gain the most from this package will require a certain amount of discipline and time, to work through all the examples and practice enough to retain what has been learned.

In order to prevent the skills you learn from Microsoft Encarta French Deluxe from decaying quickly however, you'd be advised to keep up your practice in the language by watching French-language television, or developing a friendship with a fellow Canadian whose mother tongue is French.

Overall, as long as you keep in mind the European French orientation of French Deluxe which is perhaps inevitable in a product mainly developed for the U.S market this software is a decent, functional entry-level package for English-speaking teens and adults who'd like to develop a basic proficiency in French.

However, if you're planning a trip to Paris, this software can help you convince the surly waiters there that you are sincerely trying to parle that francais.

Learning Language lineup

Learning Language French is also available in a standard edition that does not include the audio CDs or workbook

A pair of Microsoft Encarta Spanish language training products, Language Learning Spanish ($49.95) and Language Learning Spanish Deluxe ($79.95) are also available in the Language Learning series

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Digital camera buying tips

Picture taking and the holiday season seem to go hand in hand, and this year, digital cameras may be on your wish list

By David Tanaka

While the race for more and more pixels continues, camera makers are also improving cameras with lower resolution image-capture systems Ultimately more pixels means more picture information, and that usually means a better picture But you might be quite satisfied with the images from a one or two megapixel digital camera, if you never want anything larger than a 5x7 inch print And if you want to post your pictures on one of the many photo-hosting Web sites that are popping up, these resolutions will be fine

For any given price range, you'll find models from several manufacturers For detailed reviews of the latest products see the Test Lab report in the next issue of *TCP* which will be available a couple of weeks before Christmas In the mean time, here are a few things to consider

Memory options

Some digital cameras have a small amount of onboard memory for storage, but most use some form of removable solid state memory The most common types of removable memory cards are CompactFlash (CF) and SmartMedia Sony introduced a proprietary module called the MemoryStick, which is so far used only by Sony in its cameras, music players and other devices Some Sony Mavica models have a built in floppy drive, meaning that you can use common 3.5 inch floppies to store your images (Recently Sony also introduced a camera, the MVD-CD1000, that burns images onto 3 inch CD Rs The discs are not reusable but are considerably cheaper than the other media options.)

None of these media are interchangeable, so when you buy a digital camera, the kind of storage system it uses might be an important consideration if you already have other devices that also use removable memory For example if you have an PocketPC that uses CF you could use the same memory cards in a digital camera that used CF cards

We've been told by various camera makers that SmartMedia is more popular in Asia and Europe, but CF dominates in North America. Presently CF cards have the largest capacity up to 192 MB A CF II card is also available that is slightly thicker than the CF card. IBM makes a 1 GB hard drive in CF II card format and some professional digital cameras will accept it

Typically, two megapixel cameras come with an 8 MB storage card, and three megapixel models have a 16 MB memory card. These hold about 12 to 18 pictures at the camera's highest resolution setting This can be constraining if you are on an outing—it's like walking around with half a roll of film in your camera. Your options are to save images at a lower resolution, or buy another memory card.

Battery type

We like cameras that use standard AA batteries, because if you deplete your batteries, you can always go to any corner store and stock up on a new set With proprietary batteries unless you've purchased a spare your photo outing is over when your battery dies.

Some camera models come with four Nickel Metal Hydride (NiMH) AA cells and a charger Buying these separately could cost you an extra $60 to $80, so keep this in mindwhen making price comparisons.

Download method

If your camera uses a serial connection to download images, expect to twiddle your thumbs a lot waiting for the images to be transferred from your camera to the computer Most cameras of recent manufacture offer Universal Serial Bus (USB) connection which is highly recommended if your PC also has USB Notebook computer users have an

Continued on page 59

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Athlon 1000 $1115
Athlon 700/750 $849/909
Athlon 800/850 $905/929
Athlon 900/950 $959/1045
Athlon 1000/1100 $1115/1259
Duron 600/650 $745/759
Duron 700/750 $775/799
Duron 800 $849
AMD Premier Partner

Super System
Asus CUV4X ATX 133 FSB
128MB SDRAM PC133
20.0GB Hard Drive
Panasonic 1.44MB Floppy
Internet Keyboard
Logitech PS/2 Mouse
Aopen 48X CD-ROM
ATI Xpert 2000 32MB, AGP
Creative Sound Blaster PCI w/128 Voices
Multimedia Speakers
18" ATX Tower Case
P-III 800 $1119
P-III 733/800 $1919/1119
P-III 866/933 $1249/1469
Intel Celeron 566 $865
Intel Celeron 600/633 $870/889
Intel Celeron 667/700 $919/959
Alternative
Asus CUSL2 Intel 815e Chipset ATA 100 M/B w/ Video Onboard $28

AMD Duron System
Gigabyte GA-7ZM 200MHz FSB
32MB PC133 DIMM
10.0GB Hard Drive
1.44MB Floppy Drive
52X CD ROM
ATI RageIIC 8MB AGP
AC97 Sound O/B
Win98 Keyboard/Mouse
140 Watt Speakers
Tower Case
Duron 600 $595
AMD Duron 600/650 $595/605
AMD Duron 700/750 $619/639
AMD Duron 800 $679

Pentium III Special
PC Chips EM / 254LMR M/B
64MB SDRAM PC100
10.0GB Ultra DMA100 HD
1.44MB Floppy Drive
104 Keyboard / Mouse
56K V.90 Fax Modem/ATX Tower Case
Up to 20MB Shared Video O/B
52X CDROM / O/B 3D PCI Sound
140W Multimedia Stereo Speakers
O/B 10/100 Ethernet Controller
P III 733 $745
P-III 733/800 $705/849

UPGRADE

Intel CPU Package
Gigabyte Pentium III 133MHz AT M/B, 32MB PC100 SDRAM
Celeron 566/600 $280/295
Celeron 633/667 $215/339
Celeron 700 $375
+$45 for 8MB Video Card & $17 for PC Sound Card

AMD Duron CPU Package
Gigabyte Duron/T Bird 133MHz M/B, 32MB PC100 SDRAM
Duron 600/650 $289/299
Duron 700/750 $315/339
Duron 800 $375
+$45 for 8MB Video Card & $17 for PCI Sound Card

CPU with Motherboards
Celeron 566 w/Gigabyte 133MHz MB $239
Celeron 600/633 w/Gigabyte 133MHz MB $2[illegible]/758
Celeron 667/700 w/Gigabyte 133MHz MB $28[illegible]/335
Pentium-III 733/800 w/Gigabyte MB $425/499
Pentium-III 866/933 w/Gigabyte MB $645/879
AMD Duron 600/650 MB $235/245
AMD Duron 700/750 MB $265/285
AMD Thunderbird 750/800/850 MB $359/389/435
Cyrix MII 400/433 Call

Memory
4 / 8 / 16 / 32M EDO 72 pin Call
32 / 64 / 128M SDRAM Call
32 / 64 / 128 / 256M SDRAM PC100/133 Call

Motherboards
Asus P3V4X / CUV4X / P3V 133 $165/169/135
Asus A7V / A7V Audio Socket A $280/240
Abit VT6 / KA7 100 / SE-6 $149/229/255
Gigabyte 6VXE7+ / 6VXC7-4x $110/128
Gigabyte 6VA7+ / i815e $115/215
Gigabyte 7ZM / 7ZX Socket A $150/175
Super7's 5AX / 5AX / Asus P5A $110/115/125

CD ROM • CD Writer • DVD
Artec 52x / Toshiba 48x / Asus 50x $52/79/87
Acer 48x / 50x / 52x $51/57/82
Creative 52x / Panasonic 48x $59/60
CDRW 8x4x32 Acer $199
CDRW 8x4x32 Panasonic / ASUS $225/269
HP CDRW 9310 / Yamaha 8x8x24 $330/239
DVD 8x Panasonic / LG / ASUS $125/150/149
Pioneer 16x DVD / Toshiba 12x $199/170

Hard Drives • Storage
Fujitsu 15 / 20 $175/162
WD UDMA [illegible] $139/189/205/275
Maxtor 15/ 20/ 30/ 40 5400rpm $143/188/188/229
Maxtor 15/ 20/ 30/ 40 7200rpm $145/179/220/295
Quantum 15/ 20/ 30 GB 7200rpm $155/185/239
SCSI Quantum / WD / Fujitsu / Seagate Call
LS 120 Laser Floppy Drive $89
Zip Drive 100 / 250MB int $89/145

Sound Cards • Speakers
Sound Card PC Aoound $18
Sound Blaster PCI 16 (New) $33
Sound Blaster PCI 128 / Live value $44/70
Diamond Monster MX300 3D, PCI $87
Speakers SB 64/ 3D 195 with subwoofers $35/50
Altec Lansing ACS 22 / 45.7 / 48 $39/89/189
Multimedia 4-point Surround Speaker System $89

Monitors
ADC 15" / 17" 0.75dp / 19" 0.26 $185/279/389
Proview 17" / 19" 0.25dp $268/389
Samsung 15" 550S/ 17" 750S/ 757DF $199/279/359
Samsung 18" 955DF/ 955SL/ 900SL $509/599/548
Sony E100 15" 0.25 / E200 17" 0.24 $299/525
NEC 17" 0.27dp / 0.25dp $289/385
Viewsonic E771 / E773 $318/368
Viewsonic P1775 / PF790 $499/699
Optiquest Q51 / Q71 / Q95 $219/310/489

Networking Products
PCI to USB Card $37
Network Card 10BT / 100BT $17/27
Network Cable RJ45 10 / 15 / 25ft Call
Network Cable RJ45 50 / 100ft Call
Hub 5 Port / 8 Port 10BT $35/47

Networking Services Also Available.
Corporate Clients Welcome

Video Cards
SIS 4MB / 8MB PCI $39/47
ATI Rage IIC 4M / 8M AGP $43/44
ATI Xpert 98 Rage Pro / 99 Rage 128 AGP 8M $55/89
ATI Xpert 128 AGP 16MB AGP $109
ATI Xpert @Play AGP 8M $69
ATI Xpert 2000 AGP 2X / Pro 32MB $110/135
ATI Rage Fury / Pro / MAX 32MB $139/160/240
ATI Radeon 32MB / 64 DDR AGP $379/435
Nvidia TNT2 Vanta 16M M64 / 32M $89/105
Nvidia TNT2 Rage 128 Pro 32M $135
Matrox G400 16M / 32M AGP $139/169
Asus V6600 Geforce 256 Plus 32MB $289
Asus V6800 DDR Plus Geforce 256 $309
Asus V6600 Geforce 256 Pure 64MB $238
Asus V6800 Geforce 256 DDR 64MB $399
Asus V7700 GTS 32MB / 64 DDR Pure $395/499
Asus V7700 GTS Pure 32MB DDR Plus $438
Creative Blaster TNT2 Pro 128 32M AGP $265
Logitech Xpress Camera $59
ATI TV Wonder PCI $65

Scanners • Printers
AcerScan 620P / 620UT / 640U $129/160/95
Epson Perfection 1200 / 1200U Scanner $137/135
Samsung Laser ML 4600/6040/6000 $329/419/449
Brother HL1030/ Okidata 12 Laser $335/359
BJC 1000SE / 2100 USB & Parallel Printer $84/90
Epson 480SX / 580 Printer $90/105
Epson 760 / 860 Printer $149/189
Lexmark Z12 / Z32 / Z42 Printer $95/105/235
HP 840C / 930C / 1100 Printer $735/905/968

Fax Modems
56K V.90 PCI win with voice/ Hardware Control $25/40
USB 56K Int. V.90 without / with Voice $49/55
Acer 56K with dual standard PCI/ ISA $45/66

[illegible] • All advertised prices reflect 2% cash discount • Not responsible for typographical errors • All brand and trademarks are property of respective manufacturers.

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Elite System

AMD **K6II** 500MHz CPU
Super 7 Motherboard
64MB PC100 RAM
Fujitsu 10GB Hard Drive
Panasonic Floppy Drive
8M 3D Video Integrated
56K FaxModem + free Internet
Delta 44x CD ROM Drive
PCI 3D Audio on board
140W Stereo speakers
Alpha 13" Tower Case
98 Keyboard & Mouse

$499.00

Celeron System

Intel **Celeron II 600** CPU
Intel 810 Motherboard
64MB(PC100) SD RAM
Fujitsu 20GB Hard Drive
Panasonic Floppy Drive
Intel 3D Video on-board
56K FaxModem, free Internet
Delta 44x CD ROM Drive
PCI 3D Audio on-board
140W Stereo speakers
Alpha 15" ATX Tower Case
Win98 Keyboard & Mouse

$579.00

Power WorkStation

Intel Pentium III 800MHz
GigaByte PC133 Motherboard
64MB PC133 SD RAM
Fujitsu 20G ATA66 Hard Drive
Panasonic Floppy Drive
SIS305 3D Video 16M
Motorola 56K FaxModem, free Internet
Creative 52x CD ROM Drive
32 bit PCI 3D Surround Sound
140W Stereo Speakers
Alpha 16" ATX Tower Case 250W
98 Keyboard & Scroll Mouse
Norton Anti Virus

$849.00

Athlon System

AMD **Thunderbird** 900 CPU
Asus A7V Motherboard
128MB PC133 RAM
Maxtor 20GB 7200 Hard drive
Panasonic 1.44MB Floppy Drive
SIS305 3D Video 16M
Motorola 56K FaxModem free Internet
Creative 52x CD ROM Drive
32 bit PCI 3D Surround Sound
600W Speakers w/subwoofer
Alpha 17" ATX Case 300W
98 Keyboard & Scroll Mouse

$1089.00

Professional Raid System

Intel **Pentium III** 866 MHz
Abit **BX133 RAID** Motherboard
128MB (PC133) RAM
Maxtor 30GB 7200 hard drive
Panasonic 1.44MB Floppy Drive
Riva TNT2 32M 3D Video
Diamond Supra 56K FaxModem
Creative 52x CD ROM Drive
SB Live Value Sound Card
GNT 5000 Speakers sub-woofer
Alpha 17" ATX Case 300W
98 Keyboard & Scroll Mouse

$1329.00

Alpha Net Server

Intel **Pentium III** 750MHz CPU
Intel **L440GX MB** Dual U2W SCSI, Dual CPU Slots
128MB Memory 2GB max
Fujitsu SCSI U2 hard drive 18G
Panasonic 1.44MB Floppy Drive
2MB video on board
Toshiba SCSI CD ROM 40x
Intel EtherExpress Pro on board
NetServer Case ATX 300W (hot swap capable)
Win98 Keyboard & Mouse

$2099.00

System Options

15 Samtron LG monitor 0.28dp	*[illegible]*
17 Envision monitor 0.27dp	*239*
19 Envision monitor 0.26dp	*385*
Acer 8x4x32 CDRW (w SW)	*195*
Epson Stylus 580 Color Printer USB	*98*
Acer Scanner 640U 600x1200	*[illegible]*
Rogers @Home	*18*
[illegible]	

System Upgrade Options: Add

64M->128MB RAM PC100	*59*
64M->128MB RAM PC133	*59*
128M->256MB RAM PC133	*118*
10.2->20GB Fujitsu hard drive	*38*
10G 5400rpm ->30G 7200rpm hard drive	*74*
20G 7200rpm ->30G 7200rpm hard drive	*34*
30G 7200rpm ->40G 7200rpm hard drive	*70*
52x CD Drive -> Panasonic DVD DRII 8x	*73*

The Legend continues ◆ The Legend continues ◆ The Legend continues ◆ The Legend continues ◆ The Legend continues ◆ The Legend continues

HARD DRIVES & Controllers

Fujitsu 10/20G	125/155
IBM 30G/45G ATA100 7200RPM	245/345
Maxtor 20/30/40 60/80G	155/189/239/369/499
Maxtor 15/20/30/40G 7200rpm	155/175/229/299
Quantum 7200rpm 15/20/30G	149/179/229
WD 20/30/45G	169/189/269
WD 15/20/30/40G 7200rpm	169/189/239/249
SCSI Quantum 9/18G 7200rpm	309/499
SCSI Quantum 9/18/36G 10K	459/759/1299
SCSI Fujitsu U160 9.1/18.2G	309/459
SCSI Fujitsu 10K 9.1/18/36G	359/549/889
[illegible] Raid ATA 100 Ctrl	49

Inkjet Printers

[illegible] BJC [illegible]	475/385/79
[illegible] BJC [illegible]	15/149/469
[illegible] BJC [illegible]	165/189/469
[illegible] ink tanks	178/219
[illegible]	98/145/215/349
[illegible] 870/1270	355/659
[illegible] Optra Color 45	375/879
[illegible] Z23 Z24 Z52	[illegible]

Laser Printers

Brother HL1030 [illegible]	329
Brother HL1240 1660E/2060	459/1099/1299
HP 1100/Oki 8/ 10E 24	339/359/459/1499
Samsung ML4600 6040/6060	325/439/559

Scanner

Acer 640U USB 640BU	89/105
Canon [illegible] 600x1200dpi USB	69
[illegible] 3400 640L	82/119
Epson Perfection 610	139
Perfection photo 1200U/1200U Photo	249/369

Zip/Floppy DRIVE

1.44MB Floppy Drive	16
Zip Drive 100MB 250MB	66/155

NETWORKING

[illegible] 10/100TX	68/25
[illegible] Ethernet (PCI or ISA) 10M	15/11
[illegible] Accton Ethernet PCI 10/100 BaseT	17/15
Intel [illegible] 10/100	99
[illegible] PCMCIA Network card Ether10/100	49/69
10M Hub Accton 5 ports	28
10/100 Hub 5 port/Acc 8 ports/24 ports	99 118 379
100M Hub 4 ports	45
Switch AOpen 10/100 5 ports/8 ports	99/125
Linksys Router 4 port/8 ports	259/329
Ethernet [illegible]	5 9 12 19
Ethernet RJ45 100' [illegible]	99

CPU

[illegible]

Intel MMX 233	67
Intel PIII 500/550/600E/600EB	219/239/249/259
Intel PIII 650/667/700E/733	285/245/285/298
Intel PIII 750/800/866/933/1G	[illegible]
Celeron 566/600/633/667/700	[illegible]
AMD K6II 500/[illegible]	[illegible]
AMD Thunderbird 750/800/850/900/950/1G 1.1G	209/235/269/299/349/419/579

MEMORY

SDRAM PC100 64/128/256M	59/118/309
SDRAM PC133 64/128/256/512M	59/118/309/769
RAMBUS 128/256M 800MHz	359/779

MOTHERBOARDS

Abit BX133 RAID/KT7 Raid	195/211
Abit BF6II/VL6/SE6 VH6	169/118/190/134
Abit KT7/KA7	219/189
Gigabyte 6VXE 6VX-4x/6BXC	108/139/139
Gigabyte Athl GA7ZM/ZX	155/179
ASUS CUSL2 Athlon A7V	229/229
ASUS P3V/P3V-4X/CUV4X	135/165/165
ASUS P5A Super 7 AT/ATX	125/128
Acer AX34 w sound 4xAGP	139
Acer MX33 KT133 w sound, 4xAGP	165
Acer MX3WP (E 810E 133 w sound, 4M video	145
Acer AX3S 815E 4xAGP w/video & sound	199
Acer AX6BC	115
Intel 820VC w 128MB RAMBUS	359
Intel L440GX Server Board	829
MicroStar K7T Pro	175
MicroStar Intel 810 w video sound,modem&lan	105
MicroStar 6177 Intel 815E Pro	179
SIS Super 7 Motherboard w video sound,modem	119
Celeron SK370 w video sound for celeron	79
Intel Walk w video, sound for Celeron II	89
GFx Pro w 17M TNT2 Video,sound modem Lan	119
VIA Thunderb 4 M B w sound,modem,lan	139
Zip disk 100MB Floppy	12 11

Misc

USB 4 Port Hub bus powered	[illegible]
USB Adaptor (PCI)	[illegible]
Printer Adaptor ISA/PCI	[illegible]
External CD/Hard Dr kit parallel	89
H.D mobile rack plastic/steel/SCSI	15/22/29
H.D mobile rack ATA66 w fan	23
CDR/CDRW 10 per set	[illegible]
Zip disk 100MB Floppy	1? 11
Rogers @ Home [illegible] kit	22

MONITORS

15" LCD Envision Samsung 570S	1049/1269
17" Acura GoldStar LG Samsung550S	179/179/195
15" Sony E100 Mag 570FD 0.25dp	309/259
15" Viewsonic Optiquest Q51/Q55	219/239
17" KDS/Impression/Envision 0.27dp	**239**
17" Mag 786FD 0.24dp 1600x1200	399
17" AOC [illegible] Acer view G772 0.25dp	269/299
17" GoldStar Flatron 0.24 775FT 795FT	359/419
17" NEC FE700/AS70	379 279
17" PanaSync S170/PL70	335/429
17" Samsung 750s/700NF/700IFT	279 199 389
17" Sony E200 G200	509 559
17" Optiquest Q71 Q75	295/389
17" Viewsonic E771/E773/G771	[illegible] 349 385
17" Viewsonic PF70/PS775/PF775	389 465 [illegible]
19" GoldStar 995E/Panasonic PF90	465 639
19" Envision/Samtron 0.26dp	359 429
19" Viewsonic G790 PF790/Q95	585 685 475
19" Sony G400/E400 .25dp	789 899
19" Samsung 900NF(Flat) 0.25dp	599
21" Viewsonic Optiquest Q115 0.25dp	979

VIDEO

Logitech QuickCam Express Video Cam	59
SIS PCI 8M ATI PCI 4M	49/49
SIS AGP 8M 8M TV out/16M	40 50/59
Asus GeForce2 MX32M	179
Asus V6600 Geforce 32M/Deluxe/Pro64	219/225/245
Asus V7100 32M/TV/Digital	199/219/245
Asus V7700 Geforce 32M/Deluxe/64M	309 365 469
Asus V6800 Geforce 32M Pure/Deluxe/Pro	255/285 379
ATI TV Wonder Wonder VE	95 69
ATI AGP All in wonder 128 32M AGP PCI	235 [illegible]
ATI AGP All in-wonder 128 Pro 4x 16 32M	199/269
ATI AGP XPERT98/Xpert 2Play 8M	53/73
ATI AGP 2000 32M Pro/128	119/106
ATI AGP Fury Pro MAXX 64M	55 185
ATI Radeon 32/64MDDR 64MVIVO	319 359 399
Creative GeForce 256 Annihilator Pro	389
Diamond Stealth III S540 32M	95
Matrox G400 16M 32M	129/169
Matrox G400 32M Dual 300/166 MHz	209 [illegible]
Nvidia TNT2 M64 32M 32M w/TV	97/119
Nvidia TNT2 Pro 32M	119
S3 Savage4 AGP 16M 16MTV 32M	65/79/99
Voodoo III 2000/3000/3000TV	99 109 135
Voodoo V 4500/5500	209 [illegible]

CD-ROM

Acer 52x 48x/Asus 50x	54/48/62
Creative 52x/Aetrum 52x/Delta 48x	55/50/48
SCSI Toshiba 40x	138
CDRW Goldstar LG 4432	169
CDRW 8432 Panasonic/Acer	199/195
CDRW 8432 Creative/Sony	195/239
CDRW Yamaha 8424/8824	235/235
CDRW HP 9150i/9350i	275/329
CDRW Ricoh/Plextor 12x10x32	299/399
External CDRW Sony 4x2x6/HP8210e	269/269
SCSI CDRW Yamaha 8424/8824	269/279
Software for above CDRW	15
DVD Pioneer 16x/Panasonic 6x 8x	175/105/119
DVD SCSI Pioneer 6x	195
Decoding software for DVD movie	70
[illegible] SCSI Adapt[illegible]	89 14

Multimedia

Crystal 3D Avance 32bit sound card	15/18
Acer AW37 200/320/AW744 Optical[illegible]	19/46
Sound Blaster Ensoniq PCI128 Live Value/[illegible]	[illegible]
Sound Blaster MP3 XGamer Platinum	139/289
Speakers 140w 600w Subwoofer	9/33
Speakers Altec Lansing ACS45.2/ACS54	79/85
Speakers GNT 5000 Yamaha MS201	58 53
Microphone Headphone w mic	8/14

FAX/MODEMS

Motorola 56K V.90 DataFax Voice	**22**
Acer 56K V90 Voice PCI SM PM ISA	29/42/65
Diamond Supra 56K V.90 Voice	45
USR 56K V90 PCI voice/no Voice	47/42
USR56K Hardware modem PCI [illegible]	[illegible]9/75
External FaxModem 56K Acer /Cirrus Logic	105/75

Keyboard/Mouse

Win98 [illegible] Multimedia	10/18 19
MS Natural Internet (w system)	33 26
2 button Mouse Serial PS2/USB	[illegible]
[illegible] WHN Scroll Mouse	9 12 8
Logitech [illegible] Mouse	[illegible]
PS2 mouse transparency/Trackball	[illegible]
Finger Wireless Mouse	[illegible]
MS Optical Wheel Mouse (w system)	38

CASES

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16" 17" 19" ATX Tower w 250w	27 43 45
20"/24" 27" ATX Tower w/300w	57/59/79
Power Supply 210/250/300W	23/32/43
19" Rackmount Case ATX	199

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Digital camera buying tips

Continued from page 56

advantage here, because memory cards can be inserted into the notebook's PC Card slot using a special adapter, for very fast image transfers

Image compression

Digital cameras typically offer three or four levels of JPEG image compression The higher the compression the smaller the file (and the more images you can store on the memory card) JPEG is referred to as a lossy form of data compression, which means information is discarded as part of the process—the higher the compression, the more information is discarded.

We prefer to shoot with the least amount of compression. You can always reduce the size of an image later in an image editing package for example if you want to post smaller images on the Web But it's hard to bring back image details that were not captured in the first place.

Some higher-end cameras allow you to save images in uncompressed format. Saving images in uncompressed format is, theoretically the best method, since no picture information is discarded The penalty is increased file size. For example the Epson PhotoPC 3000Z and Kodak 4800, which both offer three-megapixel plus resolution, allow you to save in uncompressed tiff format. But you can save just one of these images on the 16 MB memory card that's included with the cameras.

Ergonomics

Here digital camera makers have shown widely varying approaches. Nikon, Minolta and Agfa have all experimented with two part assemblies where the lens can pivot up and down independently of the camera body FujiFilm's x700 line, including the four megapixel-plus 4700, is taller than it is wide. These models are easy to slip into a pocket, but may take some getting used to. The majority of camera makers have stayed true to the basic size and shape of point-and shoot 35 mm film cameras, which helps in the transition to digital.

Printmaking

Until this year if you wanted prints of your digital images, you had to make them yourself on an inkjet printer Now a number of photofinishers are installing minilabs that will make prints from film or digital files. The Blacks Photography chain for example, is planning to have 60 of its outlets across Canada so equipped by the end of the year

If you want to make your own prints, most manufacturers have photo inkjets that produce prints of excellent quality Two manufacturers—Epson and Hewlett Packard—have also made progress on image permanence Inkjet prints fade more quickly than prints made the traditional photochemical way, but these two companies have ink/paper combinations that are estimated to last a couple of decades before noticeable fading occurs.

Archiving and storage

Once you've had a digital camera for a year or so, you will discover that storing all those images turns into a project in itself With film cameras, you can tuck the prints and negatives into any old drawer and be confident that they will remain relatively safe

Digital images on the other hand, have to be treated like any other kind of digital data, and the first line of defense is to back up regularly If your hard drive crashes and it contained the only copies of a special event you photographed, you will be sad

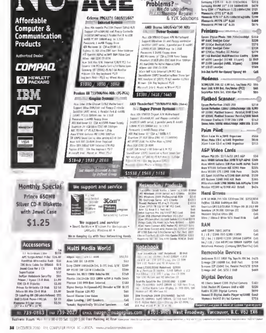
If we were to recommend a single storage method it would be CD R. The blank media is very inexpensive (in the range of a buck a disc), and the drives themselves are now quite affordable, in the $250 to $400 range CD-recording software has been streamlined, and the technology will be around until at least next decade

Recordable DVD, with its multi gigabyte storage capacity, is still too expensive, as no single standard has been reached yet. Zip and LS-120 systems will work well if you already have a drive but diskettes remain expensive ($15 each), and the 100 to 120 MB capacity may prove inconvenient when your collection grows to gigabytes worth of images ❑

Math, science site to teachers' rescue

NB—According to a press release The Futures Channel is a digital resource for math and science educators that represents a collaborative of technology specialists, curriculum experts classroom teachers and a "multi award-winning production team" The Channel offers video student activities and other resources intended to help teachers show students workplace applications of math and science concepts, and to help students develop the high tech workplace skills. The service is the product of a $1 million research effort involving thousands of teachers and students participating in long-term studies focus groups and in-class testing the company says Among its resources, the site contains streaming video packages for preview purposes but the company cautions that videotapes would need to be ordered for presentation in class

http://www.thefutureschannel.com



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Allpen 48X EIDE CD-ROM
Acer 56K Fax V.90 Internal F/M/V PCI Bus
Creative 128 PCI Audio Card w/30 Stereo Spks
Samsung 15" (550S) FS N/I LR Monitor
Mitsumi 104 Key keyboard PS/2
Logitech First+ PS/2 w/ Wheel Mouse

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Software for the executive who has everything

This is a somewhat ad hoc category I have grouped my Xmas gift suggestions into three sub categories. First is the help me to get ahead software gift. This a tough nut but here are some nut cracking software ideas.

- **Decisioneering Crystal Ball Professional** (http://www.decisioneering.com $2 200) combined with the book *Scientific Financial Management Advances in Financial Intelligence* (published by Amacom, ISBN 0814405002 $80) offers advice on doing risk assessment in a variety of financial settings.
- **Palisade @Risk for Project** (http://www.palisade.com $1,500) plus **Microsoft Project 2000** (http://www.microsoft.com, $500)—even with simple models these risk assessments are invaluable
- **Lindo What's Best Professional** (http://www.lindo.com, $1 800) with the book *Optimization Modeling with LINDO* (published by BrooksCole ISBN 0534348572, $120) solves linear and non linear optimization problems, telling what's the best strategy in numerous situations.

Left-brain solutions

Next is the coming-from-left brain approach. Here we are trying to stimulate creative impulses from the other side of the brain to get the rising gal or guy to think:

- Graphically with Micrografx **iGrafx Process or Optima** (http://www.micrografx.com, $1,500 or $1,100) which take diagramming to a new level with built in simulations, but get the flow of ideas/design down with ease that is worth the price of admission. Go beyond PowerPoint
- Creatively with **Axon Idea Processor** (http://web.singnet.com.sg/ axon2000, $200) or **IdeaFisher Pro** (http://www.ideafisher.com $300) These programs will help spark fresh ideas and perspectives
- Numerically with Mathsoft's **MathCAD 2000 Professional** (http://www.mathsoft.com, $600) This program is for math phobes or philes. It is such a pleasure to work on its mathpad screen, solving simple and complex math problems so intuitively and with lots of wizards to help the phobes

Slow it down

Finally, help the up and comer relax with a game of **Scrabble** (http://www.hasbro.com, $33) Not only can you play against the computer but other Scrabbleists online.

It has wonderful word resources, like an anagram generator, and after playing against the computer named Maven, maybe our shooting stars will also know the meaning of the word "humble"

—*Jacques Surveyer*

How to process those Christmas morning pictures

So now that you have the digital camera of your dreams, and snapped a load of pictures during the gift exchange the next project is figuring out how to manage and process all those images. Though every digital camera comes with some sort of image editing software, more often than not it is a "lite" application, easy to use but short on user-controllable features. Here are two recommendations for inexpensive packages with significantly improved functionality

PhotoImpact 6

From Ulead Systems
http://www.ulead.com
Price: $100

PhotoImpact actually comes with three programs. GIF Animator 4 for making animations and slide shows of your images, PhotoImpact Album for organizing your images into thumbnail albums with personal annotations for each image; and PhotoImpact 6, for processing your images and making them print or Web-ready

The distinguishing feature of PhotoImpact is its functionality which includes colour adjustments, masking, layering and a complete set of image tools equal in range (but not depth) to top-end programs like Adobe Photoshop and Corel PhotoPaint.

The key feature for PhotoImpact is its Easy Palette which allows users to drag and drop an effect or filter from the palette onto an image and quickly see the results, then undo them if required

Very powerful.

PhotoSuite 4

From MGI Software
http://www.mgisoft.com
Price: $66

MGI PhotoSuite 4 takes the opposite approach. It has a series of wizards that guide users through typical projects that they might do with their photos and images.

- Calendars: in yearly quarterly or monthly views, and in a variety of vertical and horizontal formats
- Photo correction: wizards/tools to adjust colour size, contrast, and composition.
- Photo layouts: including comic book family tree group photos, scrapbook posters, and more
- Cards and tags: includes bookmarks, greeting cards, gift tags, invitations, and postcards.
- Fun stuff: includes magazine covers and fun backgrounds.
- Business: includes business cards, labels and signs, certificates, stationary and promotions
- Frames and edges: provides dozens of novel or formal frames and edges for your photos.

And the best part of PhotoSuite is that for every one of these special uses, the program not only provides at least half a-dozen templates, but also guides you through the process step by step. It is a bit pokey on transitions (unless you loaded all 350 MB-plus of the support files) still PhotoSuite will really help you make the most of your images.

—*Jacques Surveyer*

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Be your own Big Brother

Webcams allow you to watch or be watched

By Sean Carruthers

Anyone who has gone through the Canadian high school system has probably read George Orwell's *1984*. Having a video camera trained on you—and Big Brother watching day or night—was a chilling prospect. But all it takes is a few years for everything to change.

Watching and being watched are now fashionable. It started with a few online pioneers training cameras on themselves and streaming the video over the Web. Their sites became some of the most popular destinations on the Web. Then came the popularity of voyeuristic TV shows like *Big Brother* and *Survivor*, which are designed to make you feel as if you are looking over the shoulders of complete strangers.

Now, more people want their own Webcams, so friends, family members, and complete strangers can see what's going on in their personal space.

And for those who want to be the star of their very own show, a few companies have developed products to make this happen by providing easy-to-install Webcam hardware. Just plug it into your PC's USB port, load the software, and away you go.

Here are three gift ideas for the budding star on your list.

Logitech QuickCam Web

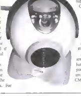
From Logitech

http://www.logitech.com

Estimated street price: $105 to $125

The QuickCam "eyeball" cameras were originally introduced by Connectix, but Logitech acquired the line and has started to take it in new and funky directions. Originally, it was assumed that QuickCam hardware would be used primarily for business purposes (in conjunction with a program like NetMeeting for teleconferencing, for example). It quickly became clear, however, that many people were using these cameras to snap pictures for friends and family and to create personal Webcam sites. The QuickCam Web model is aimed squarely at the first-time Webcam owner with a ton of software and an attractive price. Included with the hardware is photo album software, video greeting software, everything you need to get a personal Webcam up and running, and more.

One of the most interesting pieces of software included in the bundle is Digital Radar II, which acts like a motion detector, turning the camera on when movement is detected (you can adjust the motion threshold). This is useful in a number of cases: if you want to see if anybody comes into your room when you're away, if you want to find out which of your cats keeps snacking from the fish tank, or if you want to catch kids (or parents) red-handed reaching into the cookie jar, for example. It may have the whiff of Big Brother, but many people could probably think of a use for this software.



On the hardware side, the QuickCam Web comes in the orb design people associate with the QuickCam line (some previous home-oriented models have deviated somewhat). The USB camera rests on a rubber base, which allows limited repositioning. It also comes with something called the SmartClip, which allows you to hang the camera off the edge of things (a notebook or desktop, for example) if you have the room to balance it properly.

As with other members in the QuickCam family, focusing is done by turning a ring on the front of the camera. For moments when you want privacy, a flip cover swivels into place over the lens. A microphone is built into the camera module for recording greetings, or for use with networking applications. And for those moments when you just want to point and click, there is a snapshot button on the top of the camera which will take a still image and send it back to the PC.

Because the QuickCam Web uses a CMOS image sensor, the picture is a bit fuzzy compared to the CCD-based cameras (the QuickCam Pro, for example). Although some noise is introduced into the image, the picture is still good enough for most casual users. For someone who wants to get into the world of Webcams, this is an inexpensive package with everything you need to get started.

The QuickCam Web works with Windows 98 and 2000.

Logitech QuickCam Pro USB

From Logitech

http://www.logitech.com

Estimated street price: $125 to $149 (US$69)

For those who want slightly higher picture quality, the QuickCam Pro is available, and for not much more than you would pay for the QuickCam Web. This model is called "Pro" for a reason: it has a much better picture and a more versatile mounting clip.

Although both cameras are capable of picture resolutions of up to 640x480 pixels, the Pro has a better image because it swaps the CMOS sensor for a CCD

Continued on page 63

Taking photo film on a pixel ride

Usability glitches mar HP's versatile $20 slide scanner

By Jacques Surveyer

More and more photographers want to get their images into digital format for post processing and delivery to clients who are demanding digital and/or Web-ready images. Despite the explosive growth of digital photography, the majority of images are still produced on slides and negatives. Of course there is an enormous backlog of slide, prints, and negatives sequestered away in shoeboxes, photo albums, and slide boxes and carousels. Given the still prohibitive price of really good digital cameras (the 35mm SLR equivalents can cost $6,000 to $20,000), many artists and consumers are looking for ways to get their film and print images onto a computer effectively and affordably.

HP PhotoSmart Film Scanner S20

From Hewlett Packard

http://www.photosmart.com

Minimum system requirements: Mac G3 or Pentium II processor, Mac OS 8.6 or Windows 98/NT (SP4)/2000, and 64 MB of memory.

Street price: $699

Overview: HP Film Scanner converts 35mm slides, 35mm strips of slides or negatives, and up to 4x5-inch photographic prints into 2,400-dpi images.

Out of the box: Lots of little glitches to be avoided.

Pros: Able to scan prints, slides, and negatives with good colour accuracy and fair greyness.

Cons: Slow processing. Poor software ergonomics.

Overall rating: 3.5 out of 5

Continued on page 63

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Taking photo film on a pixel ride

Continued from page 60

Enter HP—which dominates the printer and flatbed scanner markets—with the PhotoSmart S20 film scanner. This device is very smartly positioned, accepting 35mm slide, 35mm negative, and slide strips, as well as photographic prints of up to 4x5 inches. With a little trickery PhotoSmart can be coaxed to scan 2 1/4-inch and other large-format negatives and slides. In addition, PhotoSmart promises up to 2,400 dpi (dots per inch) resolution and simple but effective calibration for better colour fidelity.

HP has priced the PhotoSmart unit at a fairly compelling price, $700. This is about double or triple the cost of a flatbed scanner but about 20 to 30 percent cheaper than roughly equivalent slide scanners offered by such photographic stalwarts as Nikon and Minolta.

Given that the promise of PhotoSmart is very good, the question remains how well is the product delivered.

Out of the box

With a brand name like HP, perhaps my expectations were too high. Disappointment started when I was reassured by the salesman that the PhotoSmart S20 would run on my Windows 2000-based system. Bzzzzzt! HP and the salesman made the sale but no thanks to either party for not warning that PhotoSmart S20 works only with Windows 9x and Windows NT 4.0.

I then switched to my 200 MHz based Pentium system running Windows 98 and the installation, following the convenient quick install guide and using the setup wizard appeared to go smoothly without incident.

But after scanning the first slide, the unit refused to scan any more slides. So I pressed the front panel button and tried to switch to prints. No luck, the unit refused to read in the print and now would not even switch to read a slide. After rebooting and trying the other troubleshooting hints suggested by PhotoSmart's help file, I resigned myself to reloading the software as the last troubleshoot recommendation before calling support.

I was not too optimistic because the recommended sequence of install steps are the same as those I'd already done—it was simple the first time, so how could I have made a mistake? Sure enough, after the second installation attempt, the scanner would not scan a slide or anything else. Being desperate to scan some slides I needed yesterday I tried one more re-install of the software, but this time I not only removed the software but all its directories, icons, and any other vestiges remaining on my computer. Third time was a charm, with the software and scanner appearing to work. But I was thoroughly spooked despite the reassuring words of the PhotoSmart multimedia tutorial.

I had plenty of prints, slides and negatives to scan to test the PhotoSmart scanner, so thought I was off to the races. Unfortunately PhotoSmart did not want to race with me.

Scanning results

PhotoSmart was easy to operate—just press a button on the scanner to switch between slide, strip, and print mode. HP's software is twain-compliant, which means that using the import or acquire commands in any of the major image processing programs (Adobe Photoshop, Corel PhotoPaint, Deneba Canvas, Jasc PaintShop Pro, MGI PhotoSuite, Micrografx PicturePublisher ULead PhotoImpact, etc.) will run the scanner. However, the HP software is very kludgy.

After inserting a slide or print, PhotoSmart does a prescan of the image which takes about five to 10 seconds. Then users make final adjustments in the PhotoSmart dialogue, including corrections for dpi, slide type and positioning of the image. A final scan takes about 30 to 200 seconds depending on the size of the media being scanned.

What is particularly vexing is that PhotoSmart software does not provide a way to bypass prescanning. When doing dozens of slides you have to prescan every one and reset option choices every time (or at least HP has hidden the work around—if there is one—very deeply in its manuals and help files). Was this a nuisance? You bet! Was this the only nuisance factor? Unfortunately no.

The PhotoSmart scanner also had the nagging habit of randomly refusing to take in a negative strip, slide, or print. Sometimes the software hung, forcing a reboot. When a slide or negative is inserted, the scanner's light turns on when it is ready to load the image. Other times, though coaxing that light on was as frustrating as getting an old credit card into an ATM machine. Apparently there is a patch for the system hang problem, however HP product support sent me to Microsoft and Microsoft sent me to an email request black hole that has yet to respond.

Fortunately the results of the scans are pretty good. I found the colour fidelity to vary with the medium. Prints were best, colour slides and negatives were sometimes a bit light or colour shifted, but not by much. Image quality was not too bad at 2,400 dpi, but solid colour fields at lower resolutions would exhibit grain patterns, especially with prints.

As with all photo processing, you must be careful about lint and dust. HP provides both a small whisk brush and rubber balloon to blow dust out of the way which was very effective.

Summary

With this unit the HP design people got the product bundle right—slide, negatives, and prints with 2,400-dpi resolution and good, if not great colour accuracy and low to medium graininess. The price is very competitive with other film scanners with fewer features and comparable accuracy. The USB connection works well.

However, the HP engineers have uncharacteristically left a few rough edges. The installation process was disconcerting despite the clear manual instructions and good multimedia introduction. Perhaps my three tries at loading the software was a bit of bad luck. But the continuing, almost random, problems loading in slides and prints appears to be a hardware glitch—a refusal to read media, or hardware hangups in about one out of 10 times seems high to me.

Yes, the scanner software provides all sorts of exposure and scan controls, but turning off the prescan to speed up processing would be a very desirable feature.

In sum, this HP scanner has some uncharacteristic sloppiness that mars an otherwise fine product. ❑

Jacques Surveyer is always scanning for good image makers, contact him at jos[illegible]

Be your own Big Brother

Continued from page 60

(higher res CCDs are typically found in newer digital cameras).

Essentially, the picture is less grainy, crisper and is not as susceptible to flicker and static. The internal hardware required for the better picture means less room inside the camera housing and consequently the camera is simply that, a camera: no microphone, no buttons. The package still comes with audio in the form of a headset microphone so if you don't mind looking like an air traffic controller, it works just fine.

The QuickCam Pro's innovative mounting clip is undoubtedly one of the best selling points of the whole package. Many tethered cameras simply rest on a surface or have a very limited range of motion. With the QuickCam Pro the camera offers nearly 360 degree positioning thanks to its special clip base. The camera is held in place by a U shaped bracket that can swivel 360 degrees. The camera also tilts within the bracket, but not a full 360 degrees as the cord gets in the way. Additionally the base has a built-in spring clip, allowing you to attach the camera to anything thinner than 2.54 cm (1 in.), like the side of a bookcase.

The QuickCam Pro ships with the same extensive software bundle that comes with the Web model, including software for setting up your own Webcam site, Digital Radar security software and more.

The QuickCam Pro works with Windows 95 (rev B), 98, and 2000.

3Com HomeConnect PC Digital Webcam

From [illegible]
http://www.3com.[illegible]
Estimated street price [illegible]

With its recent sale of the US Robotics modem line, 3Com is now focusing on other forms of connection, most notably networking for the business and home environments.

The HomeConnect line features a number of Ethernet based solutions for the home office network, as well as a USB Webcam.

The HomeConnect PC Digital Camera is a sleek black camera with a base that swivels 360 degrees and a more modest tilt range of about 60 degrees. There is a focus ring on the front of the camera that allows you to get within a few millimeters of an object.

The camera ships with a reasonably good bundle of software, including Microsoft NetMeeting, PictureWorks Live, PictureWorks NetCard and RealNetworks G2 Player for streaming audio and video.

The package also includes Webcam32 software for uploading images to your Web site, though it should be noted that this software is a demo version that expires after each hour of use.

You can restart it immediately but it's a bit of a hassle, especially since the Logitech models come with software that uploads your captured images without restrictions.

The picture quality on the camera is very good, but is limited to 640x480 pixels.

All of the Webcams reviewed automatically adjust for low light conditions, but this camera is the best of the bunch under low light, returning crisp pictures that look as if they were taken with the lights fully on. For use in dim environments, this one wins hands down.

The camera works with Windows 95 (rev B), 98, and 2000, making it a good choice for either home or the office. ❑

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How handy!

While Palm Computing's handheld dynasty remains intact as we close out 2000, competitors are bringing interesting and powerful products to the arena

Feeling out of the loop? But don't know where to start?

Headlines go

By Sean Carruthers

Welcome to the future. There's a lot to be said for *Star Trek*'s influence on the development of technology. At a time when nobody had foreseen cellular phones, the crew of the Enterprise was using wireless communicators. More relevant to the Test Lab this month, however, were the tricorders and data pads, the portable devices crew members used to perform a variety of tasks while in the field.

While handheld computers come nowhere near the fictional tricorder (with its ability to diagnose illness and scan for life forms), we have made progress in the real world. Now you can carry around a device that fits in the palm of your hand, yet allows you to enter notes, sort through your entire contact list, alert you of upcoming appointments you shouldn't miss, compose email, beam data to other handhelds almost instantaneously, and connect wirelessly to the Internet.

You still can't scan a planet for intelligent life, but you can certainly add a wireless modem and tap into the communications network. You can't necessarily determine the exact location of a particular person who is somewhere else, but you can attach a global positioning system (GPS) module and determine exactly where you are. Who knows where we'll be in a few years?

Right now most handheld technology falls into one of three camps, broken down by the operating system. These three types are Windows-based, Palm, and Symbian.

Pocket PC

Can you fit a whole PC into your pocket? That's the impression Microsoft wants to give with the name of its new operating system for portable devices. Essentially an updated version of Windows CE, Windows for Pocket PC offers a very similar interface to Windows 98, and "pocket" versions of Microsoft Excel, Word, Internet Explorer, and Outlook.

The argument for Windows for Pocket PC is that people will feel more comfortable using a handheld computer if it is similar enough to the computer that sits on their desktop, because they already know the windowing scheme used by Windows 98, with the Start button and menu setup. Theoretically, you should be able to pick up a device running Windows for Pocket PC and immediately start using it if you have experience with the desktop version.

The problem with this approach, however, is the same problem people have with Windows on the desktop, which is that it eats up a lot of resources. A lot of the handheld's memory is used by open applications, and a lot of processing power is consumed by the user interface—in fact, higher processor speeds are starting to be an important specification for handhelds.

The user interface is close enough to seem familiar, but there are certain key differences that can really throw off a novice user, like the lack of a "close" option for applications or documents. Of course, switching from one application to another simply suspends the one running and opens the other one, just like on the PalmPilot. Still, it's a bit counterintuitive to someone familiar with the desktop version of Windows.

Pocket PCs do have advantages over other platforms, though, especially in the multimedia department. Some Pocket PC machines use high-quality colour displays, so picture quality on the screen is much better than on smaller monochrome displays. This feature has lent itself well to the new Microsoft Reader software, which allows you to read books with graphics right on your handheld. PocketPC devices now also incorporate a media player capable of stereo playback of MP3 files, as well as full motion video clips.

The question you have to ask yourself, though, is whether having a high powered multimedia device in the palm of your hand is worth the extra investment? These devices have a higher quality screen, high-quality audio components, more RAM, and more processor power, but the price is quite a bit higher than, say, a Palm. If you only need a handheld device for keeping your contact list, alerting you about meetings and jotting down the occasional note, a Windows-based device may be overkill.

If you do want one of the Windows-based devices, there's no shortage of available models, however. Many of the major PC manufacturers have entered the handheld market with Windows-based devices, as have manufacturers typically more interested in peripherals and other non-PC hardware. A sampling of these devices is reviewed below.

Palm

The Palm has been so successful in the world of portable devices that the name has become the generic term to refer to all handheld computers. Part of the Palm's success comes from its operating system's elegance and ease of use, and the device's simple yet functional case design. At a glance, the Palm seems to be almost too basic, with a tiny screen and fairly rough monochrome display on the earlier models, no sound capability other than beeping, and a fairly cryptic data input method. In some ways, it seems almost primitive.

This is a bit deceptive, though. Some would argue that the Palm's simplicity is the very reason for its success. Instead of trying to create a rich graphical interface and duplicate many of the programs that are so popular on full size screens of desktop computers, Palm sticks to the basics and gives you only what you need. Because there's very little unnecessary stuff on a Palm, it's possible to fit both the applications and a ton of user data into only 2 MB of RAM, whereas Windows-based models seem unhappy without at least 16 MB onboard.

Because it didn't try to replicate the desktop experience and was very clear about what it was—a powerful interactive pocket organizer that could easily be synchronized with data on your main computer—the PalmPilot was a runaway success. In fact, the Palm still holds the lion's share of the market, successfully holding off both versions of Microsoft's handheld platforms (Windows CE and Pocket PC, that is). About the only concession Palm has made to the Microsoft challenge is to add a colour screen to the Palm line, which is a relatively minor concession in the grand scheme of things.

For the most part, Palm has previously been available only from the source (previously 3Com, now Palm Computing). The notable exception: IBM has had its own line of Palm handhelds for the enterprise market (rebranded WorkPad and with a black case and the IBM logo, but otherwise the machines were functionally identical).

It wasn't until Handspring arrived on the scene with its line of Palm OS powered Visors that there were any innovations in the hardware that had not been initiated by Palm—which is not really a surprise, as

Continued on page 69

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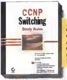

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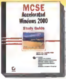

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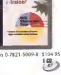

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Windows CE/PocketPC-based handhelds

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Hewlett-Packard	NEC					
	Cassiopeia E-125	Cassiopeia EM-500	iPaq H3650	Jornada 545		
Jornada 720	MobilePro 880					
Operating system	Pocket PC	Pocket PC	Pocket PC	Pocket PC		
Pocket PC	Windows CE					
Onboard memory	32MB	16MB	32MB	16MB		
32MB	32MB					
Screen type	64K colour TFT	64K colour TFT	4096-colour TFT	4096-colour CSTN		
64K-colour TFT	64K-colour TFT					
Screen size	240x320	240x320	240x320	240x320		
640x240	640x240					
Input method	stylus	stylus	stylus	stylus		
keyboard and stylus	keyboard and stylus					
CompactFlash?	Type II	no MMC	optional attachment	Type I	Type	Type II
PC Card?	no	no	optional attachment	no	yes	yes
Infrared port	yes	yes	yes	yes	yes	yes
Modem	[illegible]	no	no	no	y	yes

Lab Test: How handy?

Continued from page 66

Handspring was founded by the inventor of the original PalmPilot and former members of Palm Computing's executive team. With the introduction of the Springboard slot for external hardware, Handspring moved the Palm platform into exciting new territory. Further, Handspring incorporated a microphone into the Visor for use with third party hardware that is audio enabled. See below for reviews on both Handspring and some of the newer offerings from Palm itself.

Symbian/Psion

One company to watch out for is U.K.-based Psion. Although it doesn't currently have a high profile in North America, it is the number one handheld platform in Europe and fans of the Psion technology are very devoted. Psion was making handheld computers long before Microsoft introduced Windows CE.

The reason behind its success is similar to Palm's: it's a very basic operating system (Symbian's EPOC) that offers everything you need in a very efficient manner. Adding to the Psion's appeal, however, is the fact that the devices have keyboards, making data input quite easy. Add all this to the fact that the technology uses a powerful 32-bit architecture and you've got something that's making other manufacturers sit up and take notice.

And take notice they have. Palm, the champion in the North American handheld market, has actually licensed parts of the OS from Symbian for use in its own technology. Further, Diamond Multimedia recently chose to enter the handheld category with a device that uses the Symbian OS and hardware based on the Psion Revo Plus.

It's hard to say what effect this will have on the handheld category as a whole, but it's certainly an interesting development and one that bears watching.

Casio Cassiopeia E-125

From Casio Computer Ltd.
http://www.casio.canada.com
Suggested list price: $950

When it comes to the power of the Windows-based handheld PC, Casio has always delivered more—more multimedia, more screen colours, and more flexibility.

The 32 MB Pocket PC-based Cassiopeia E-125 also follows that pattern. First off, it comes with a high quality 64 000-colour TFT screen that makes it easy to see what you're doing no matter what the level of ambient lighting. As far as the multimedia component goes, Casio has long made the Cassiopeia line compatible with MP3 files, a feature that has now been incorporated into Windows for Pocket PC. This feature is enhanced by the inclusion of a Type II CompactFlash (CF) slot for external storage, which means you can use higher capacity CF cards or even the IBM microdrive.

The design of the E-125 makes it relatively easy to use. In the bottom left corner there is a four directional tilt panel for scrolling through items on the screen, which is supplemented by a jog wheel on the left side of the device, for scrolling and item selection (spin with your thumb to scroll, depress to select). The front panel has one touch buttons for your contacts, calendar and menu selections. One touch buttons on the side take you to the voice recorder, as well as the Windows drop down menu. Everything stored in your handheld is accessible with just a few clicks, with this setup. Of course, you still have a stylus for manual input on the touch sensitive screen.

The E-125 comes with a free protective soft carrying case. Although it doesn't come with a set of headphones, the box contains an offer for a free set of headphones and three replacement styluses for the cost of shipping.

The E-125 uses a proprietary removable Lithium Ion battery. It can be synchronized to PCs running Windows 95, 98, and 2000 desktops and Windows NT 4.0 with an optional serial cable and IntelliSync software.

Casio Cassiopeia EM-500

From Casio Computer [illegible]
http://www.casio.[illegible]
Suggested list [illegible]

The EM-500 is a new addition to the Cassiopeia Pocket PC line and it's similar in most of the fundamental ways, but with a few key differences.

First, the EM-500 doesn't use a synchronization cradle: it connects directly to PC with the included USB cable. Secondly, the device uses the new MultiMedia Card (MMC) slot for additional memory. Although this makes it a bit less flexible (no Type II devices like microdrives or modems, for a start), the smaller size of MMC memory makes it possible to shave a few millimeters off the depth of the device. This thinner size comes at the expense of a bit of memory: the EM-500 only ships with 16 MB onboard.

Most of it is the same as the larger E-125, though. The screen still features 64 000 colours and a bright TFT display. In addition to Pocket PC's traditional stylus input, the buttons have a similar layout, making it quite easy to get anything stored on the unit quickly and easily. Plus, it features high quality stereo audio, allowing you to use the device as a portable MP3 player (of course, it pretty much becomes necessary to get some MMC memory for this purpose, because of the EM-500's limited onboard memory). Lastly, it also comes with a protective soft carrying case.

The EM-500 uses a proprietary removable Lithium Ion battery, which recharges when the EM-500 is plugged directly into its power adapter. The device can be connected to Windows 95, 98, and 2000 desktops and to Windows NT 4.0 via an optional serial cable.

Compaq iPaq H3650

From Compaq Computer Corporation
http://www.compaq.ca
Suggested retail price: $699

Compaq's iPaq brand spans both desktop and handhelds. The 32 MB H3650 model is definitely a handheld model and with its brushed metal finish, it's one of the sleekest and most attractive models tested this month.

The basic design is fairly small, with a slight bump on the upper left corner putting a record button where your thumb rests. The front of the device has one-touch buttons for your calendar, contact list, Compaq tools, and the programs list. In a rather elegant design, the speaker doubles as a four directional tilt and select panel for scrolling through items then selecting the one you want.

Continued on page 70

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Lab Test: How handy!

Continued from page 69

On the Pocket PC side, the iPaq is the only handheld we looked at that didn't have a slot for removable storage built into the body of the device. Ultimately, this keeps the size down, and those who really need a CF for external storage can purchase the CompactFlash Jacket—which wraps around the back of the device—separately for $59. (For greater versatility, you can purchase the PC Card Jacket for $219, which will allow you to use compatible PC Card devices, including Type 1 CF cards.) When not in any of the jackets, the iPaq H3650 can use the included soft protective carrying case.

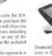
The biggest problem with this approach is that the device becomes fairly thick with one of the jackets attached. A protective jacket (black, as are the other jacket modules) is included with the iPaq, which makes the unit a bit thicker but without adding any additional functionality. Another slight criticism about the design is that the stylus only fits into its socket one way, despite its mostly symmetrical appearance, and if you're not paying close enough attention, you may end up jamming it most of the way in before you realize it's backwards.

But the handheld itself, and the USB synchronization cradle, are quite stylish. The cradle comes in the same black and brushed metal scheme as the handheld. The device is compatible with Windows 95, 98, and 2000 desktops, and with Windows NT using the optional serial connection cable ($42).

The iPaq is powered by an internal Lithium Ion battery that charges when the unit is in the synchronization cradle or when plugged directly into the power adapter.

Diamond Mako

from $5 Inc. Diamond Multimedia
http://www.diamondmako.com
Estimated street price: US$399



Diamond has achieved both fame and notoriety in the world of MP3 with its popular Rio line of players. Now, it has entered the world of handhelds with the Mako. Those familiar with Psion's product line may mistake the Mako for a Psion and with good reason. The Mako is the first product released under a new licensing agreement with Psion, and is based on Psion's Revo model. As you'd expect, the Mako uses Symbian's EPOC operating system.

The Mako comes with 16 MB of onboard memory, and a keyboard that's roughly half the size of a desktop model. It's a bit hard to use at first but gets easier once you adopt a two-thumb method of input—you can actually get quite fast at this with practice. The touch-sensitive 480x160 pixel screen is monochrome only but this helps reduce power consumption.

For docking with the desktop, the Mako comes with a small serial cradle. The one complaint about this is that you still plug the power adapter into the Mako itself instead of the cradle, meaning you can't use it as a recharge station per se. The good news is that if you don't plan to sync with the desktop, using it only as a standalone unit, you can keep the cradle in storage.

An infrared port is built into the rear of the unit for connection to external devices, including a travel modem or printer interface.

The EPOC operating system takes a bit of getting used to for those most familiar with the world of Windows, but then again, so does Palm. In addition to the keyboard, there are a few one-touch application launchers located around the outside of the screen, including contacts, agenda, email, phone, a world calendar, calculator, jotter, infrared send and receive, zoom, cut and paste, and a pull-down menu. Each application has a special bar along the right side of the screen for application-specific options. In addition to these one-touch items, you also have access to Symbian's own word processing, database and spreadsheet software, as well as a game

Continued on page 72

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15/19/25" ATX Tower Case 250w PS	38/45/[illegible]
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1.44M Floppy Drive Panasonic	[illegible]
Removeable Hard Drive Rack	[illegible]
5.25" Rack for 3.5" Device	[illegible]
Hard drive Cooling fan	[illegible]
Secondary Case Cooling Fan/Slots Fan	[illegible]
CPU Cooling Fan K6/PIII	[illegible]
AMD K7 Ball Bearing Cooling Fan	[illegible]
Printer Cable Bi-directional	[illegible]
SCSI Hard Drive Cable 3-5 Head	[illegible]
PS/2 Mouse & Keyboard Adapter	[illegible]
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Software

Corel WordPerfect 2000 Suite	39
Corel Draw 8/9	99/199
Microsoft Work Suit 2000	139
Lotus SmartSuite Millennium	19
Set up multiple computers to share one internet account	30

Upgrade Special

Celeron 600+Intel 810 MB w 3D Sound Card+56K Fax+Video(DVD ready) LAN Card. 289

Lab Test: How handy!

Continued from page 70

called Cascade (which is totally addictive).

The Mako uses an internal battery that recharges whenever the unit is plugged into the power adapter. It's compatible with a Windows 95, 98 or NT desktop.

Handspring Visor Deluxe

From Handspring Inc
http://www.handspring.com
Suggested retail price US$249

Handspring is one of the first companies to go head-to-head with the Palm on Palm's own turf (using the Palm operating system, that is). Why compete directly with the most popular handheld platform? Handspring thinks it has a number of innovations that not only feature the same ease of use that the Palm OS is known for but enhance it on the hardware side.

The key hardware enhancement with the Handspring line is the Springboard slot. This slot is essentially an open backed section on the Visor that accepts third party hardware or software cartridges. The first Springboard module we had a chance to see, when the Visor was first introduced last year, was a Tiger Woods golf game. Now a whole range of items is available including cell phone add-ons, other software packages, backup modules, MP3 players, and more.

We had the opportunity to look at the Wristband Thincom portable modem, as well as the Blocks eyemodule digital camera attachment. Both were nice additions to the Visor—maybe not as full featured as the stand alone versions for a desktop, but certainly items that make the Visor more than just a standard Palm device.

In most other areas, the Visor is everything you'd expect from the Palm platform: easy to use, simple, and relatively inexpensive at this functionality level (in fact, Handspring's introduction of the Visor line led Palm to introduce a lower priced model, the m100 reviewed below).

The Visor comes with a USB synchronization cradle, which allows you to use it with either Mac 8.1 or later, or Windows 98 (Windows Me and 2000 users can download updated drivers, but other users must purchase the optional serial synchronization cradle). The Graffiti method of stylus input is a bit difficult at first, but most users pick it up fairly quickly. The mostly metal stylus included with the Visor is particularly sturdy compared to the all-plastic models found on many other handhelds.

The Deluxe model comes with 8 MB of onboard memory. By contrast, the standard Visor comes with 2 MB of onboard memory for US$179. The Visor Solo is US$149, but it ships without the synchronization cradle. The Deluxe model also comes with a soft carrying case, in addition to the clip on plastic screen guard. The Visor is available in five colours: ice, green, blue, orange and graphite. The Visor Deluxe uses two standard AAA batteries.

(Note: Those looking for a Visor with a colour display are in luck, as Handspring

Continued on page 74

Palm, Psion and other handhelds

	Palm m100	Palm IIIc	Handspring Visor Deluxe	Psion Revo Plus	Diamond Mako	Xircom Rex 5001
Operating system	PalmOS 3.5	PalmOS 3.5	PalmOS 3.1	Symbian EPOC	Symbian EPOC	Starfish
Onboard memory	2MB	8MB	8MB	16MB	16MB	512KB
Screen type	monochrome	colour TFT	monochrome	monochrome	monochrome	monochrome
Screen size	160x160	160x160	160x160	480x160	480x160	160x90
Input method	stylus	stylus	stylus	keyboard and stylus	keyboard and stylus	button
CompactFlash?	no	no	no-Springboard	no	no	no
PC Card?	no	no	no	no	no	no
Infrared port?	yes	yes	yes	yes	yes	no
Modem?	no	no	no	no	no	no
O/S compatibility	Win9x/NT/2000	Win9x/NT	Win98/2000, MacOS 8.1+	Win9x/NT	Win9x/NT	Win9x/NT
Connection to PC (included)	serial	serial	USB	serial	serial	PC Card, serial
Dimensions (WxDxH mm)	79 x 118 x 18	81 x 129 x 17	76 x 122 x 18	157 x 79 x 17	157 x 79 x 17	85 x 54 x 5
Weight (g)	125	193	155	200	200	40
Warranty	one year	one year	one year	one year	one year	one year
Website	www.palm.com	www.palm.com	www.handspring.com	www.psionusa.com	www.diamondmako.com	www.xircom.com
Price	$229 SRP	$499 SRP	US $249 SRP	US$399 street	US$399 street	$249 SRP

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Celeron 667 / 700 $1126 / $1159
Pentium III 800 / 933 $1286 / $1516

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IDE ROM External Case	$69

Call us for prices of other parts not listed. All prices reflect 3% cash discount and are subject to change without prior notice.

Lab Test: How handy!

Continued from page 72

recently announced the Visor Prism, which is similar to the Deluxe model, but with a 16 bit colour screen. It'll cost you, though: the Visor Prism will debut at US$449.)

Hewlett-Packard Jornada 545

From: Hewlett-Packard Company
http://www.hp.ca
Estimated street price: $729

Hewlett-Packard's Jornada line featured one of the first Pocket PC based handhelds we had a chance to look at in the Test Lab, and its Pocket PC-based line is still going strong. The 16 MB Jornada 545 is a palm-size unit with reasonably good multimedia capabilities.

The Jornada now comes with a USB synchronization cradle for faster data transfer. Input is via the included stylus, which is stored in a mini pocket on the underside of the flip up protective screen cover. As with other Pocket PC devices, the Jornada 545 has several one-touch buttons for easy data access. The front of the device has buttons to take you to the device's "home" page, to contacts and the calendar, and to your task list. The left hand side has a jog dial for scrolling and selecting, as well as a one touch record button.

The Jornada 545 features a CF slot, for additional data storage. This is one of the only machines featuring a CF media this month to stick with the older Type I slot, which means a thinner device at the expense of potentially higher storage capacity—and functionality since some manufacturers are offering devices in CF II format.

The biggest problem with the 545 is the LCD screen, which is willfully dim even when you adjust the contrast. This is especially true in bright light, so if you plan to use the device outdoors, the Jornada may not be your best pick.

The Jornada comes with its own headphones for better quality audio, and features a built in Lithium Ion rechargeable battery. The first batch of Jornada 545 units to ship will feature a serial synchronization cable for users without USB—so, if you need one, check the box first for a serial cable to find out if you have to make a separate purchase.

The Jornada 545 is compatible with Windows 95, 98 and 2000 desktops, and with Windows NT 4.0 using the serial cable only.

Hewlett-Packard Jornada 720

From: Hewlett-Packard Company
http://www.hp.ca
Estimated street price: $1,399

For those looking for a larger unit, HP offers the 32 MB Jornada 720, which comes in a clamshell design and features a full keyboard—which is 75 percent the size of a standard desktop keyboard— in addition to stylus input. This keyboard allows you to do much of what can be done on a notebook, but on the 720's more compact form factor.

While the keyboard seems fairly small, with a bit of work, you can enter data reasonably quickly, even if you touch type. In addition to the alphanumeric keys, there are a number of one-touch keys that launch applications, including Explorer, email, record, contact list, task list, calendar, Pocket versions of Access, Excel and Word. At the side of the screen are four additional one touch launch buttons for settings, Windows Media Player, dialup connections and backup.

The 640x240-pixel screen included with the Jornada 720 makes it far more suitable for serious work than any of the palm-size devices, especially for those who need to write or take notes while on the road. The screen features up to 64,000 colours, and the brightness/contrast control is very flexible, with separate settings for indoor use, outdoor use, as well as power saving modes.

When the machine is at home base, it can sit in its wide synchronization cradle, which has a serial connection to the PC, as well as a stylus holder. While in the cradle, the removable Lithium Ion battery will be recharged. If you don't want to use the cradle, you can connect the power supply directly to the Jornada, and use the direct serial cable connection, also included in the package.

For those who travel a lot, one nice feature is a built-in 56Kbps v.90 modem, which means you won't have to haul around a lot of accessories. For expansion and backup, the 720 features both CF (Type I only) and PC Card slots.

In the end, those who want a Pocket PC handheld device will find this unit eminently usable, owing to the keyboard and an excellent software bundle.

The Jornada 720 is compatible with Windows 95, 98, NT, and 2000 desktops.

NEC MobilePro 780

From: NEC Computers Inc.
http://www.neccomputers.com
Suggested retail price: $1,384

Those looking for something slightly larger than the Jornada 720 may want to consider the CE-based MobilePro 780. Although it features an older version of the operating system, and slightly less in the way of updated software, it has a large enough form factor to allow for a 90 percent keyboard, which makes serious work even easier. This also means that the 640x240-pixel screen is slightly larger than those on other clamshell type devices.

Continued on page 82

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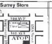

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Corel gets Microsoft money

And chance to take part in .Net development

By Tom Venetis

Corel was not only given a financial lifeline from its long time competitor Microsoft, but a doorway into the new markets the Redmond software giant expects its .Net platform to produce in the next few years.

In early October, Corel and Microsoft jointly announced that Microsoft would be purchasing 24 million non voting convertible preferred Corel shares valued at some US$135 million.

Along with the cash infusion, both companies would now work together to develop, test, and market new products built around Microsoft's .Net strategy which was announced in June.

The cash infusion could not have come at a more crucial time for Corel.

The company posted a loss of $23.6 million on sales of $36.6 million in the second quarter, and revenues dropped by nearly half from the same time last year. Adding to the bad news was the continued drop of Corel's stock after the failed merger with Inprise/Borland. In the wake of that failure, and in an effort to chop some $40 million from its annual expenses, Corel laid off 320 employees, or some 21 percent of its workforce.

In the end, the continuing problems eventually lead to the resignation of Corel's founder and chief executive offer Michael Cowpland in August.

Derek Burney Corel's then chief technology officer stepped in to assume Cowpland's role.

While things improved somewhat by the third quarter, with a reported net loss of only $10.7 million on revenues of $36.4 million, the company continued to struggle and began putting out feelers for possible investors. That was when Microsoft came knocking.

Rob Enderle, vice-president of desktop and mobile technology with the Giga Information Group in Santa Clara, Calif. says the reasons Microsoft stepped in to help Corel were personal as well as strategic.

"The old president of Corel [Cowpland] was extremely anti-Microsoft and went down the path of trying to do whatever he could including trying to build hardware, in order to take on Microsoft," Enderle says. "And as we have seen with a bunch of other firms in the past, that has not been a successful path to take."

With Burney things are different, Enderle says. Here was someone who had good relations with Microsoft and who even knew several Microsoft executives.

"A couple of Microsoft executives picked up the phone and congratulated [Burney], and from that call US$135 million eventually resulted," Enderle says.

For Corel, this new relationship with Microsoft means more than just desperately needed money for its coffers. It now gives Corel an inside track to Microsoft developing .Net strategy.

Corel, Microsoft alliance aids .Net

.Net is Microsoft's long term goal of integrating the Internet into its operating systems and applications even more than it is now. The key to the strategy is the development of services and applications that reside on the Internet, rather than on the hard drive of a desktop or laptop PC, and that can be accessed anywhere, anytime.

"Corel has been looking for the last year to see how to best move our applications out onto the Web," says Burney, who has recently been given the president and chief executive officer titles on a permanent basis. "If you look at technologies like Citrix, they take existing desktop applications for Windows and allow them to run on the Web or the network. From a customer's perspective they don't really gain much of an advantage because it is very much the same application and it really does not matter where it is running. But if you were to imagine that the application was developed so that only some of it runs on the desktop and calls into services on the Web, then you start to capture some of the power of the Web. The .Net framework will allow us to develop our applications along that paradigm."

Kevin Restivo, an analyst for Toronto-based International Data Corp. (Canada), says the alliance with Corel will add greater legitimacy to Microsoft's .Net strategy since an important key to its success is whether it can bring well known application developers on board.

"Any software platform needs developers and .Net, being as young as it is, needs to show that momentum and this is the first step," Restivo adds. "For Microsoft specifically, it now gives them access to a development team that will help them in terms of their .Net platform. These are developers who can write the kind of code and have the abilities that will help them push the platform."

But there may be other reasons for the alliance beyond just Microsoft wanting to further legitimize its long term business strategy. Buried in the joint release both companies gave out to the press, is a cryptic line saying that the alliance also settles "certain legal issues between Corel and Microsoft."

The release did not go into any detail as to what those legal issues may have been.

Giga's Enderle suggests that these issues could be related to Microsoft being accused of anti-competitive behaviour by other software developers. With the recent U.S. Department of Justice ruling against Microsoft, it has certainly given ammunition for rivals to go after Microsoft. And with the appeal of that ruling still pending, anything negative that might happen to a Microsoft competitor could come back to haunt the company.

"Microsoft was looking at two bad events," Enderle adds. "If Corel failed during the appeal process, it would not help their appeal. And if Corel sued them during the appeals process, that also would not help. Both firms

Continued on page 80

Apple News

Apple previews QuickTime 5.0

By Justin Siemens

Apple has released a preview version of QuickTime 5.0, which is available for download now from its web site (http://www.apple.com/QuickTime). This version sports a new interface (which is the same as the one found in QuickTime for OS X), as well as several new codecs, including Flash 4, Cubic VR (QTVR) and Shoutcast (streaming MP3). Also new is a feature called Skip Protection, which works in conjunction with QuickTime Streaming Server 3 to minimize dropped frames and skipping audio while watching QuickTime feeds over the Internet. The QuickTime player is still a free download, but if you want to upgrade to editing capability you need QuickTime Pro, which is available for US$29.99 and can be downloaded from the Apple Web site. If you own any previous version of QuickTime Pro you will automatically receive the Pro 5.0 version when you upgrade. The final version is due the new year.

Office: Mac 2001 available

Office 2001 for Mac, which Microsoft has renamed Office:Mac 2001, is now available at resellers in Canada as either a full version or an upgrade from Office 98. The new version features many improvements including a more modern Mac like interface and a full version of Microsoft's Exchange client called Entourage. Office:Mac 2001 also features better compatibility with PC versions of Office and with older versions of Office for Mac. The file format in this new suite is fully compatible with Office 2000 for Windows without requiring translation. Also Excel 2001 can communicate directly with FileMaker for exchanging data between spreadsheets and database systems.

The suite is US$299 for an upgrade, and US$499 for new users.

http://www.microsoft.com/mac/office

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Effective until Dec. 31, Apple Canada is offering mail in rebates on G3 PowerBook and G4 Cube lines of Power Macintosh computers. If you purchase a PowerBook between now and the end of the year, you will receive $300 back from Apple. Your choices include the 400 Mhz model with 64 MB RAM, 10GB hard drive, and a DVD drive, or the 500 Mhz model with 128 MB RAM, a 20 GB hard drive, and a DVD drive.

If you purchase a Power Mac G4 Cube with an Apple display before the end of the year, you will receive $450 back from Apple. The Cube is available only in a 450 MHz, with 64 MB RAM and a 20 GB hard drive, unless you order one from the Apple store, in which case you can configure it yourself. Displays included in the rebate offer are the 15 inch LCD Studio Display, the 17 inch CRT Studio Display, and the 22 inch LCD Cinema Display. ❑

Justin Siemens is a Macintosh IT specialist based in Vancouver, B.C. He can be reached at jsiemens@mac.com

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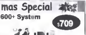

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< PLATFORM NEWS >

Corel gets MS money

Continued from page 78

were looking at a set of events that were not attractive for either one of them. So they started chatting about it and the amount of money needed for Corel was not exorbitant from its resources."

There may be another reason as well that Microsoft looked to Corel as a partner and ally, one that may have more tangible benefits for Microsoft. And that is Linux.

While Microsoft has not made any overtures to the Linux market, the company is certainly aware of the growing popularity and Linux and its importance to the Internet.

Framingham, Mass.-based International Data Corp. predicts Linux will continue to show strong growth worldwide through to 2004.

It is expected that on the operating system front, Linux will show revenue growth at a compound rate of 183 percent annually. And on the application and development software side of things, Linux will generate some US$90.2 billion in revenues by 2004.

The argument is also made that since .Net will have to rely so heavily on the Internet to succeed, it will need to take Linux into account since Linux is used to create applications and platforms that reside securely and with a great deal of stability on the Internet. By teaming up with Corel, which has ongoing Linux development, Microsoft gets to tap into that market without having to overtly embrace a platform that has been dubbed the Microsoft killer.

Frank Clegg, president of Microsoft Canada Co. in Mississauga, Ont. dismisses such suggestions.

"The .Net investment is about Windows and the common core is the XML standard," he adds. "It is not about Linux, but about Windows on XML. Corel can decide if they want to go and invest a bunch of time in Linux. That is up to them. My time is going to be spent making sure everything works so well on .Net and that [Corel] is the best implementation on .Net."

Clegg is also surprised that much has been made out of the cryptic line in the joint release about the legal issues. He says that there were no outstanding or pending legal issues between the company.

In fact, what they wanted to avoid was any problems in the future that might arise by them working together.

All the alliance does is nip any such issues in the bud right away. ❑

Travel writers get their say

HB—Travel Intelligence is the world's first online publishing platform for travel writers. The plan is for the site to host and syndicate, both online and off line, premium travel writing from some of the best English language travel writers from around the world. The founder of the service is A.A. Gill, of *The Times*, who said that the portal has already signed up 60 respected travel journalists including William Dalrymple, Nick Danziger, Jeremy Seal, Vitali Vitaliev, Dea Birkett, Sara Wheeler and others.

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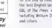

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Lab Test: How handy!

Continued from page 74

The 780 is well suited for life on the road with a built-in 56Kbps v.90 faxmodem, allowing you to connect wherever you have access to a phone line. There's a PC Card slot on the right hand side of the machine, and a Type II CF slot on the front, allowing more flexibility for both expansion and backup. There's also a VGA adapter, allowing you to hook it up to an external monitor for doing presentations, for example.

Although the nearly full sized keyboard makes it easy to use, there are a few other features that make it even easier. A series of one touch application launch buttons will take you to email, Explorer, calendar, contacts, your task list, Pocket versions of Word, Excel and PowerPoint, as well as the voice recorder, and calculator. There's also a jog wheel located just under the screen, though it is limited to up/down scrolling, even in cases where left/right would be more appropriate (in other words, you can't use it to scroll through all of the files in an open window, just those that are on top of each other).

The MobilePro 780 comes with a proprietary Lithium Ion battery, which recharges when the unit is plugged in. Although it doesn't have a synchronization cradle, it connects to the desktop PC with the included serial cable.

Even with the slightly older version of the operating system, the MobilePro 780 is a powerful companion for the business user. It's compatible with the Windows 95, 98, NT, and 2000 desktops.

Palm m100

From: Palm, Inc.
http://www.palm.com
Suggested retail price: $229

The price advantage of the Palm recently took a challenge from Handspring, which introduced its own Palm OS based handheld, the Visor, at a lower price-point than any of the Palm models. To counter the Visor challenge, Palm introduced the m100.

The form factor has been updated, and though it's bulkier than the Palm V, it's more stylish than the squared off Palm III series. Like most of its Palm siblings, the m100 has a monochrome screen, which is smaller on this unit than on other Palms. Like earlier versions of the Palm, the m100 has 2 MB of onboard memory, which should be adequate for most entry level users. Those who want to install a lot of third party applications, or who have extensive data entry needs, should consider the move up to an 8 MB model elsewhere in the Palm line.

The m100 features some things not on the rest of the Palm line. In addition to a slightly redesigned button selection, it features a hinged flip cover that protects the screen, with a little cut-out window that shows the time even when the machine is off. Another feature with the m100 is the replacement of the full synchronization cradle with a serial HotSync cable, which helps to keep the cost low and doesn't substantially change the way you sync your Palm with the desktop.

One nice touch with the m100 is the inclusion of the infrared port, despite the machine's lower price point.

The Palm m100 uses two standard AAA batteries for power. It is compatible with Windows 95, 98, NT and 2000 desktops.

(Note: Though the m100 does not ship with Mac compatibility, a PalmConnect USB kit is available for US$39.95. It includes a USB-to-serial port adapter, Mac and PC USB software and a Mac version of the Palm Desktop. For compatibility with older Apple hardware a Mac serial adapter kit is available for US$14.95.)

Palm IIIc

From: Palm, Inc.
http://www.palm.com
Suggested retail price: $499

The Palm line of handheld computers still sits at the top of the heap in terms of units purchased and used. It's easy to see why: compared to Windows-based solutions, the interface is exceptionally easy to use and very responsive. Despite these benefits, one area in

Continued on page 92

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342TV	P3-500	128MB	12G	6XDVD	12TFT	56K	$2953
[illegible]							
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The Computer PAPER

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Is anybody there?

Web vendors' service lags behind customer expectations

By Stefan Dubowski

Industry observers say IBM Corp. (http://www.ibm.com) is heading in the right direction with its phone-based customer service feature on its retail Web site—but our insiders wonder why others don't mimic this computer company's lead.

"I think it's ridiculous," said John Mozas, vice president of the Toronto online grocery store, Grocery Gateway (http://www.grocerygateway.com). "The relationships you can create through ear-to-ear contact are unbelievable."

Earlier this year IBM unveiled its Call Me Now button, which it displays prominently on its product pages. Need to know more about the ThinkPad 600 notebook? Click Call Me Now, enter your name and phone number... and wait.

It takes approximately 10 minutes, by our count. IBM claims an average of 30 seconds for a return call.

"We've all been in those situations where we've done things on the Web and when we move to the phone service, we have to repeat information," said Dave Ball, an IBM.com executive. Call Me Now and other IBM initiatives were designed to reduce redundant information.

IBM wanted to bring telephone, online chat, and email customer service together. No matter how you call, you'll get an answer, Ball says.

For example, let's say you want to know about software packages for your ThinkPad. "Our representative can... push you to the right page," Ball said. So long as IBM has the information at hand (read: if it's on the Web site), its reps can send pertinent news.

IBM isn't alone—but it's part of a surprisingly small group of online retailers that recognize the importance of communication between vendors and customers, industry watchers say. By all accounts it's paramount to success.

Consider Jupiter Communications' study, commissioned by First Direct, a U.K. based telephone and Internet bank. Jupiter describes an abysmal online customer service landscape:

- Most (80 percent) online shoppers remain dissatisfied with the level of customer service they get from e-commerce

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Microsoft, Compaq, Intel back Canadian dot-com start-ups

TORONTO—Microsoft Canada has announced a program to help fledgling Canadian dotcom companies turn their business plans into reality, in partnership with Compaq Canada Inc. and Intel Canada Ltd. The speedStart program will revolve around a technology centre in downtown Toronto where startups will use technology from the three companies to prototype and test their ideas.

The Toronto facility is similar to one Microsoft has already opened in Boston, and Frank Clegg, president of Microsoft Canada, said at a Toronto press conference in October that he hopes to see two more such centres in Canada in the next year or so. "You should expect us, if we're doing this properly, to cover Canada," Clegg said. "There'll be something in the east and something in the west."

Microsoft also has plans for similar facilities in Austin, Tex., and Chicago in the next few months.

The Toronto facility includes three separate work areas for dot-com companies, with computers, telephones, and network connections. These share access to a server room and the facility can be used for load-testing prototype Web sites before they go live. The three companies will provide technical support along with consulting services and expertise to help participating dot coms develop their businesses. The location also includes a sizable software library, officials said.

The facility, located in a Microsoft technology centre, is the core of the program, but "the program is a lot more than this centre," said David Booth, president and managing director of Compaq Canada. There are also a Web site (http://www.myspeedstart.com) and an assortment of services for participants.

The basic level of participation costs nothing, and includes access to a large assortment of information, Clegg said. At the next level, for $2,500 per month, startups gain access to the Microsoft Development Network package. Additional services are available for

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Totally Wired: Part I

E-commerce tomorrow means living in a world of intelligent, networked machines

By Jeff Evans

The final keynote speech at the NCR Global Partners conference in Orlando this fall was an eye-opening vision of the future from Pattie Maes from the Massachusetts Institute of Technology's (MIT's) Media Lab (http://www.media.mit.edu/).

Maes (pronounced *mawz*) is touted as one of the up and coming talents involved in conceiving the technologies for the next generation of digital living and working. According to Maes, the real revolution has yet to start, and it'll be driven by data warehousing, personalization technologies, wireless networking, and the deployment of intelligent software agents, which will act as middlemen, negotiators, salesmen and consumer advocates.

Privacy will be a major concern, but if the technologies are properly used, and backed up by well drafted laws, consumers could find their power increases relative to the power currently enjoyed by big corporations.

Maes opened her remarks by asking the audience, "If the Internet were an earthquake how would it compare in terms of impact: minor, fairly significant, or the Big One?"

The 3,000 mostly information technology professionals in the audience massively voted for the last option: we ain't seen nothing yet. Maes agreed, saying that the Internet is changing everything, levelling everything of the old world order and allowing new structures to be built.

Cheerily, she said, "the worst is yet to come." We have really only seen the beginning of how business transactions are going

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Is anybody there?

Continued from page 84

firms

- Even more (90 percent) customers say they want an "integrated service" telephone connections, email options, Web pages that answer frequently asked questions (FAQs), all of the above, and then some.
- Only a third of customers recommend e-commerce firms to friends and acquaintances. Good news by word of mouth is said to boost sales.

First Direct (http://www.firstdirect.com.co.uk) stands within that handful of Internet enterprises with all communications routes open, says Sarah Ring, the U.K. bank's public relations manager.

"If the customer is online, online is their preferred route of connection. Of course, there are always times you can't connect. It's really reassuring to know that we go beyond the Internet."

First Direct's call centre is staffed 24 hours a day, seven days a week. It's a rare thing, Mozas notes.

"I think part of the problem is the incremental costs of going from 70 percent to 90 percent," he said, referring to the price for making sure 90 percent of customer calls are answered in a reasonable time. "The cost becomes very steep at that point."

Why? Because many call centre employees would have nothing to do. Idle time isn't cheap. But for Mozas, it's worth the price.

What better way to impress your clients than by turning frowns into smiles? He suggests.

"You're upset and we just messed up your order. If I can hire a customer representative who can calm you down and make you happy, you'll remember that."

Ball agreed.

"When you're looking to meet or exceed your customers' expectations, when you delight the customers, they come back... and they buy again."

If IBM has the right idea, so does Compaq Canada Inc. (http://www.compaq.ca). This computer builder recently said it would hire 200 new employees for its Nepean, Ont. call centre.

Compaq says this expansion will cost $1 million. That includes 5,000 more square feet to accommodate 1,200 customer service representatives and 110 technicians. This centre is dedicated to Presario calls—people looking for help with their Compaq notebook computers.

Specialization matters too, according to Ball. IBM's reps each have a specialty be it desktop or notebook computers, personal digital assistants or "printing systems."

But it hasn't been easy, Ball said. The most difficult piece was "scaling the solution"—making sure every customer across North America has access to expert advice, no matter how contact is made.

It's not just the computer people building better bridges to customers. Mozas notes Land's End Inc. (http://www.landsend.com), which returns calls quickly, and Webvan Group Inc. (http://www.webvan.com), which has a philosophy similar to Grocery Gateway's.

Improved customer service is as easy as adding a telephone number to your Web page, Ring said.

"That's my biggest bugbear, email with no phone number. It's closely followed by being shuffled around by voice mail."

Voice mail, like email, is where customer questions go to rot, Mozas said. And queues can be even worse. He once waited 15 minutes on the phone to speak to a company representative (he wouldn't say which company). As frustrating as it was, Mozas actually lucked out. Complaints of lengthy wait-times abound—lengthy, as in

Continued on page 89

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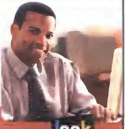

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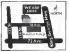

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Microsoft, Compaq, Intel...

Continued from page 84

additional fees as needed

The plan appears to be that startups will occupy space in the speedStart facility for a fairly short time—as little as a week—to test their technology before launch

The first occupant is eDrugstore.ca a startup that hopes to launch a nationwide online drugstore this fall, that includes prescription and non prescription products along with access to pharmacists and other services

Michael Burns president of eDrugstore, said at the speedStart launch that he has been impressed with the access to expertise and technology that the program has provided his company which has moved development staff into the facility

He hopes speedStart will help eDrugstore avoid typical launch problems "We're going to be able to work through and test the system before we launch to make sure that we can fulfill the promises that we make"

Brett Udashkin, regional manager of Intel Canada said dot-coms are facing a less forgiving business climate than they did before the meltdown in Internet stocks last March "The rules of business—big business—are back in vogue" he said This means startups need to reach profitability as quickly as possible and without spending excessive amounts of cash

Startup funding is not a central part of the program but Booth noted that Compaq has created a US$1 1 billion investment fund for Internet startups and the Canadian subsidiary will be responsible for administering this in Canada

For the three backers the project is clearly a bid to get as many dot-com startups as possible to develop their projects using Microsoft software on Compaq hardware with Intel technology inside "Make no mistake about it" Booth said "This is a competitive weapon for us to go after people like Sun [Microsystems Inc]."

—Newsbytes

Is anybody there?

Continued from page 86

45 minutes to an hour

Grocery Gateway prides itself on always answering the phone This company even posts a number on the Web site for its chief executive officer

We asked Ball why he thought others weren t following IBM s footsteps But he didn t take the bait

"We prefer to set the bar rather than pay attention to the industry standard"

We wanted to get Kimberly Williams opinion on the current state of customer service for Internet shoppers

Williams is an executive with RR Donnelley and Sons Co., a communications company

We tried to contact her via email to a subsidiary, Red Rover Digital (http://www.redroverdigital.com)

"Here's a small test," we wrote "I d like to speak with Kimberley Williams Can you folks get me in touch with her before 12 p m., Eastern Time? Time is of the essence—and it speaks to your own customer service readiness"

We have not yet heard back.

—CanadaComputes.com

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E-commerce means intelligent machines

Continued from page 84

to change because of intelligent agents, databases and wireless technology

Maes and her Media Lab students have designed scenarios for a possible future, in order to better understand how impending new technologies could best be used.

For example, not too long from now said Maes an MIT student named Daniele may routinely carry a handheld Palm device with a global positioning system (GPS) card, which fixes his location anywhere on earth.

As well the handheld Palm computer has a bar code reader, and a wireless modem (all these accessories are currently available)

One day as Daniele is visiting a friend, he sees a book that he would like to buy He pulls out his handheld, swipes the book's bar code and tells his computer he d be willing to pay up to $45 to buy a copy of the book.

The next day, while Daniele s walking through Boston s Harvard Square, his Palm computer is quietly talking to the computers in all the nearby stores anonymously asking them if they have this book, and what would be the lowest price they d sell it for

The software on Daniele s Palm is acting as a proxy agent, programmed with Daniele s interests his shopping list, and other buying parameters Daniele has set

The GPS system allows the Palm to determine by his speed of motion if Daniele is walking (Daniele has set it to query stores within 500 m when he is on foot) or driving (when it is set to query stores within 10 km)

When the software agent on Daniele's Palm locates the book at a desired price, it starts to beep and Daniele can then decide what to do buy, ask for a hold on the book, do nothing or cancel the shopping task.

If Daniele tells his computer to buy the book, he then enters his four-digit PIN and his credit card account is charged the price, and the Palm shows him where he can go and pick it up giving directions if necessary

Daniele doesn t wait in a checkout line but goes to the service desk where the book has been set aside for him picks it up and leaves

Maes also described a slightly more complex scenario where bricks and mortar stores had to compete with online vendors to get Daniele's business.

The Palm, working on Daniele s criteria (price warranty, delivery reputation of the vendor) asks multiple companies to bid their best price to sell a new Sony CD player and then displays the best results to Daniele, who makes the final decision

As a wired consumer Daniele has great leverage to get the best possible price The retailers data warehousing systems in order to get a sale, have to be prepared to give the best possible price bid in order to get Daniele s business.

The software agents used by both buyers and sellers are programmed to use negotiation strategies. The consumer s agent asks for a competitive bid, and may ask for the best price

Without giving away any of Daniele s personal information his agent discloses model he s looking for the delivery time he needs, a customer ID number and Daniele s present location.

At the start of negotiations, Daniele s agent software withholds the price range Daniele is considering (in case one of the potential sellers offers a lower price), and other personal information

The software agents for the retail stores and online stores look at their stock of the CD player model Daniele wants, the rate at which it is selling, whether the customer ID number of Daniele s Palm has ever been involved in a transaction with them before (vendors often place a premium on attracting new customers and may give introductory discounts)

All this negotiation takes a second or less, and in Maes scenario, results in three acceptable offers found Daniele makes the final choice buys the CD player his charge card account is billed and he gets an electronic receipt.

As he makes his way home Daniele s Palm is still at work. Daniele has previously configured his computer s agent to be open to any special offers from nearby stores, such as electronically delivered coupons

His Palm computer has been set to be prepared to broadcast anonymous info on recent purchases Daniele has made and also offers some information on Daniele s consumer preferences, for example, in music.

As he passes by a Tower Records store its electronic agent, configured to offer special prices to wired passers by, recommends some new CDs to Daniele s agent

The Palm relays the offer Danielle purchases three new CDs at a bargain price to play on his new CD player when it is delivered.

The situation described in this scenario is something the MIT Media Lab and others around the world are trying to build.

Maes says there are three major elements that we don t yet see in today's commerce technology

- Clicks and mortar retailers need to merge their physical world operations with e commerce technologies
- Automation of buying and selling, through software agents, data warehousing, and other software has to be widely available
- Personalization options have to be perfected and delivered.

Nevertheless Maes insists, something like what she has described will probably happen over the next several years, as a billion handheld connected computers are sold to individuals, and data warehousing and personalization technologies become pervasive in business

—*CanadaComputes.com*

Next. Totally Wired, Part II: What women want (and don t want) from intelligent agents, privacy concerns, and the potential for consumer power to benefit from collective use of intelligent agents to build consumer communities

For more information contact Pattie Maes at pattie@media.mit.edu or access the Media Lab Web site at http://www.media.mit.edu

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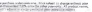

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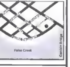

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Lab Test: How handy!

Continued from page 82

which Windows handhelds had an edge was in the world of colour. Enter the Palm IIIc, which adds colour to the popular Palm III line.

The 8 MB Palm IIIc has the same basic configuration as other members of the Palm family, including one-touch access for calendar, contact, to do list and memo pad. Soft buttons along the side of the Graffiti pad access the calculator, the Palm's main page, the pull down menu and the search option. There are also two buttons for scrolling through documents and menu options.

So, how's the screen? To be honest, the 160x160 pixel resolution of the display puts it on the grainy side. Unfortunately, this makes items on the screen a bit indistinct, and may actually be hard on the eyes for extended use. For short bursts, though, it should be just fine for most users.

The Palm IIIc comes with a serial-port synchronization cradle, which is pretty much standard issue with the Palm line. (As with all Palm hardware, though, kits are available separately to expand the Palm IIIc's connectivity options. See note under Palm m100 review.)

This model features an internal Lithium Ion battery, which is recharged while the unit is in the cradle.

Overall, the IIIc makes a nice addition to the Palm line, and the recent price drop may make it even more attractive to those who aren't prepared to jump to Windows to get a dose of colour.

Psion Revo Plus

From Psion Inc
http://www.psion.com/revoplus
Suggested retail price US$399

If you've looked at the review of the Diamond Mako, you've seen the Revo Plus, the model on which the Mako is based. (In fact, they're exactly the same hardware, but with different logos.) That should tell you something about the Revo Plus: it's a handheld worth emulating.

Although it ups the memory from 8 to 16 MB, the Revo Plus uses the same design as the slightly older Revo model, which is a very compact clamshell design with a miniature keyboard. Owing to an innovative sliding hinge design, the Revo actually seems quite a bit larger once opened up. The 480x160 pixel screen is monochrome, but the wide design makes it more suited for writing than the narrow palm-size models also on the market. The small keyboard may take a bit of getting used to, but you can get fairly speedy using a two-thumb hunt-and-peck style of data entry.

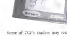
It has a number of one-touch application launchers located around the outside of the screen, including contacts, agenda, email, phone, a world calendar, calculator, jotter, infrared send and receive, zoom, cut and paste, and pull down menu. Each application has a special bar along the right hand side of the screen for application specific options. In addition to these one touch items, you also have access to Symbian's word processing, database and spreadsheet software, as well as the addictive game Cascade.

The Revo Plus connects to the PC using a serial synchronization cradle. It has a rechargeable internal battery, which is topped up whenever you plug in the power adapter.

One thing worth mentioning: when it's snapped shut, the Revo Plus is only slightly larger than models in the Palm III line. When you consider that this device comes with almost everything you need for productivity plus a keyboard, you may find you're much further ahead with the Revo.

Xircom Rex 5000

From [illegible]
http://www.x[illegible]m.com
Suggested [illegible] $249



Some of TCP's readers may remember the Rex line from the days when it was owned by Franklin. Xircom has purchased the technol-

Continued on page 94

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Epson [illegible]	$[illegible]

Sound Card (more on web)

Aopen AW724/ AW744 PCI (yamaha chip)	$[illegible]
Aureal 2D/3D PCI/ Creative 1.0 PCI	$[illegible]
SB Live PCI/ SB Live Value PCI Retail	$[illegible]
Diamond monster [illegible]	$web
SoundBlaster PCI 64/ 128/ 512	$[illegible]

Video Card (PCI) (more on web)

[illegible]	$[illegible]
Powercolor ATI TNT2 32MB PCI	$[illegible]

Video Card (AGP) (more on web)

Asus [illegible] GeForce [illegible]	$[illegible]
Asus [illegible] GeForce2 [illegible]	$web
Asus [illegible] GeForce2 [illegible]	$[illegible]
ATI Xpert98 8MB AGP	$[illegible]
ATI Xpert@[illegible] 32MB AGP	$[illegible]
ATI All in Wonder [illegible]	$[illegible]
ATI Rage128 Fury Rage 32MB tv out/4x	$[illegible]
ATI Rage Fury MAXX 64MB Radeon 32MB	$[illegible]
Creative Labs Savage4 32MB	$[illegible]
Creative Labs GeForce Pro 32MB	$[illegible]
[illegible]	$[illegible]
[illegible]	$[illegible]
[illegible]	$[illegible]
Diamond Speedstar [illegible] Savage4 Pro+32MB 4x	$[illegible]
Diamond Stealth [illegible] Savage4 Pro+32MB 4x	$[illegible]
Diamond Viper II 32MB	$web
[illegible] PowerColor RIVA TNT2 16/ 32MB	$[illegible]
Matrox G400 [illegible] dual head 32MB	$[illegible]
[illegible]	$[illegible]
Voodoo [illegible] AGP	$[illegible]
Voodoo [illegible]	$web

Camera & Conference (more on web)

[illegible] USB	$web
Logitech quikcam [illegible] USB	$web
Canon [illegible]	$web
Epson [illegible]	$web

Networking (more on web)

Acer/ Aopen/ Surecom/ Com. PCI Network Card	$[illegible]
Acer/ Surecom/ Generic Com ISA Network Card	$[illegible]
DLink 10/100Mbps [illegible] PCI Card	$[illegible]
Generic 10/ 100 Mbps FAST PCI Network Card	$[illegible]
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DLink Network Kit	$call
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4-port Hub [illegible]	$[illegible]
[illegible]	$[illegible]

Software (more on web)

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As-Is items			
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Portable Printer	$20	Barcode Reader	$40

*Customer may [illegible] please check with our salesman.

Lab Test: How handy!

Continued from page 92

ogy and has plans to take it in a slightly different direction. In the meantime the trusty old Rex Pro has been re-released under the Xircom banner as the Rex 5001.

When compared to other devices reviewed this month the Rex is the odd unit out, as it doesn't accept stylus or keyboard input. In fact, when on the road, all input is entered using a combination of six buttons, which forces the user to scroll through a series of menus and select letters one by one by one. Needless to say this is tedious if you have much data to enter.

Luckily, this isn't the way the device is meant to be used. The Rex 5001 is the size of a PC Card. It slides into a PC Card slot on a notebook computer when you need to synchronize your data. In other words, you're supposed to enter all your daybook and contact list data into your notebook, synchronize it with the Rex, then use the small device to access that information while you're on the road.

While it's not as fully featured as the other handhelds reviewed, its incredibly small size (about the size of a stack of 10 to 15 business cards) makes it exceptionally easy to tuck in a pocket. It even comes with its own soft fold over case, which has room for business cards. It's also less expensive than the other units we looked at this month. For those who don't require a device capable of extensive manual input, the PC Card compatible Rex could be a great alternative.

The Rex also comes with a serial port docking station, for those who don't have a notebook PC. The unit is compatible with Windows 95, 98, and NT and should be compatible with 2000 as well.

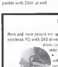
The Rex uses two CR2025 watch batteries, which provides several months of use.

Editor's Choice:

Handspring Visor Deluxe
After a slow entry into the Canadian market place (a year after the product's U.S. debut) the Handspring is now ready to give the rest of the handhelds on the market a run for their money. Why? It's relatively inexpensive, simple to use, and one of the most flexible devices going, owing to the Springboard slot on the back. Even better, it uses a USB synchronization cradle, making it one of the only handhelds to sport Mac compatibility in addition to ye olde Windows right out of the box. It's hard to ask for more from a handheld apart from maybe a colour screen ... and that's coming. ❑

DVD for Christmas ?

More and more people are upgrading or replacing the CD-ROM drives on their desktop or notebook PCs with DVD drives because of recent changes in the DVD market (and, yes, DVD drives can read all CDs). Some of the more compelling reasons to consider DVD include:



- More movies are coming out simultaneously on DVD and video, with the DVD versions offering extra goodies like directors' cuts and behind-the-scenes interviews.
- More developers are releasing software on a single DVD that used to require multiple CD-ROMs. For example, Microsoft Works 2001 Suite on DVD (which includes the latest versions of Works, Word, Encarta, Streets & Trip, PictureIt, and Money) can take advantage of Windows Installer in Windows ME or Windows 2000 for dynamic loading of files and resources when needed. The CD-ROM version of the suite comes on six discs.
- As with software applications, encyclopedias—which now include timelines, 360-degree panorama views with hyperlinks, and other images, maps, and interlinked stories—become invaluable when stored on one DVD rather than five to seven CDs. We can heartily recommend Encarta 2001 and World Book 7 on DVD.
- Documentation for huge systems, like Visual Studio or SQL Server, is now available on one DVD rather than spread over literally dozens of CDs.

—*Jacques Surveyer*

EWanted relaunches

NB—Reverse auction site eWanted has launched a redesigned site incorporating more of what was demanded by its members, more functions and "category-specific" content. The revamped site gives members enhanced reverse auction programs and is "a more fun, colourful site with enhanced flow and efficiency." Changes were made to the site after several months of gathering and analyzing member feedback. The site relaunch features "easier site navigation, updated categories and subcategories, category specific news and information, and improved customer service," the company said. EWanted also is introducing an upgraded seller tool, Early Bird Notification, which provides direct leads to relevant and ready-to-purchase buyers by category, subcategory, region and keyword.
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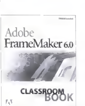

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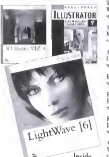

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< TECH ENTERPRISE >

Brainbanx.com brokers Web talent

Looking for talent to build that killer Web site? A Toronto company thinks it has the solution.

Brainbanx.com (http://www.brainbanx.com) is offering a one stop shop to those looking for experienced Web and e-commerce site creators and designers.

Brainbanx.com has some 200 qualified companies and experts now available through an online accessible database listing everyone from Web page designers to full service Internet shops.

"We have companies that range from individual freelancers who may already have a full time job elsewhere to 100-person Web development shops who are registering with Brainbanx.com to find new projects," says Andrew White, chief operating officer for Brainbanx.com Inc. in Toronto. "The skills range from consulting, e-business IT services, multimedia programming, technical Web page design and everything from content management to copyediting. Pretty much anything within the realm of Internet site building and e-commerce development."

White says the goal of Brainbanx.com is to make it easier for companies to outsource the necessary skills and expertise needed to put together a successful Internet venture or e-commerce site. "It is very rare to find a company that can do everything that needs to be done on a project internally or to find a single outside company to do everything. It is more common to work with several companies in order to get a large-scale Internet or e-commerce project off the ground.

A good Web site or e-commerce site is a lot more than the HTML coding," White adds. "Therefore we are trying to make it easy for a company looking to develop their Internet presence to find a professional [copywriter], a professional artist, graphic designer or transaction processing expert."

Currently the Brainbanx.com service is free.

The site allows people not only to search for available expertise, but also allows for companies and individuals to post information about their qualifications, examples of their work and any relevant literature or contacts that they believe potential clients would be interested in.

Brainbanx.com also offers to assist in RFP (request for proposal) services, project scoping and needs analysis. It can also take over a company's administrative work in finding and coordinating the necessary outside talent, especially if a client thinks it cannot do so for itself.

"The client pays Brainbanx.com and we sub-contract the necessary work to members that are in our network," White says, claiming the cost of Brainbanx.com is much lower than one of the traditional, big Web development shops.

—*Tom Veretis*

The museum of Jurassic Technology

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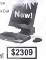

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Canadian companies lead world in IT improvement plans: study

By Jessica Freeman

Canada's chief executive officers (CEOs) are clear on what issues they think businesses should focus on and continue to enhance IT and e-commerce.

According to the *Compass World IT Strategy Census 2000*, they feel more strongly about this than CEOs around the world.

"I think the conclusion drawn with regards to Canadian CEOs spells the end of the hype around e-commerce," said Howard Davies, senior vice-president at Compass Management Consulting. "CEOs are more interested in delivering e-commerce than communicating the benefits of it."

Of the surveyed Canadians, 71 percent ranked improved IT performance as a definite key to success in business, compared to 40 percent of the global CEOs polled. Seventy six percent of the Canadians also ranked e-commerce strategy as a primary business issue.

The average from their counterparts worldwide was 52 percent.

"That suggests Canadian CEOs are further ahead [in IT]. They're more familiar and more pervasive," said Davies.

Participants were also asked about the contribution of chief information officers (CIOs) today.

According to Davies, the results clearly indicate that CIOs are no longer around to simply provide information on the possibilities of IT but instead to directly contribute in business strategy.

"The focus in Canada is not about the buzzwords surrounding e-commerce, or the marketing potential of IT anymore. Now the focus is on delivering that and getting more knowledge of customers in the marketplace."

CEOs from Australia, Canada, Denmark, France, Germany, Italy, Norway, Spain, Sweden, the United Kingdom and the U.S. were polled in the study, conducted by the London School of Business and commissioned by Compass.

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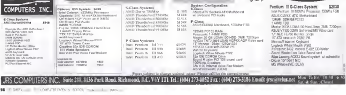

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E-business changing the rulebook, analyst says

NEW YORK—E [illegible] revolutionizing the operating model of fast growth companies, according to a new report

The study, which forms part of PricewaterhouseCoopers (PwC's) *TrendSetter Barometer* said both employees and customers are the primary enablers of change

For its research, PwC (http://www.pwcglobal.com) interviewed the chief executive officers (CEOs) of 441 product and service companies identified in the media as the fastest growing U.S. businesses over the last five years

The surveyed companies range in size from approximately US$1 million to US$50 million in revenue/sales

The bottom line to the report is that fast-growth service companies jumped into e business while their counterparts in the product sector were content to wade

The study said they took the risk that accompanying operational changes could jeopardize existing relationships with both employees and customers

But now on average just over two years later the report said these early adopters are beginning to enjoy the significant operational benefits from their e business commitment and are counting their employees and customers as their biggest supporters

Viewed separately PwC said that service companies expect to generate 21.8 percent of their revenue from e business over the next 12 months versus just 9.3 percent for their product sector counterparts, or around 2.5 times more

H Lee Durham PwC's operations manager said product sector businesses have been understandably reluctant to disrupt long standing ties with direct customers and suppliers.

Against this, he added, service businesses have fewer of these constraints and consequently have been more welcoming

Interestingly PwC's report notes that service sector CEOs say e business has brought remarkable changes to their business, improving efficiency (cited by 64 percent), their approach to customer service (53 percent) employee skill sets (53 percent) and business processes (51 percent)

Other important changes include new delivery systems for products or services (46 percent) additional revenues generated (45 percent) increase in number of customers (45 percent) and development of new products or services (45 percent)

According to Durham, e business has had a revolutionary impact on these service companies

"The incidence and depth of these changes is all the more remarkable considering the average time in operation for e-business in these particular companies is only 25 and a half months" he said

When asked to assess factors that will have an impact, positive or negative on their e business projects over the next 12 to 18 months the report found that customers and employees again play a leading role

PwC said the majority of CEOs from service companies cite customer or user adoption (64 percent) support at the top (64 percent) ability to adapt new or existing products and services to the e channel (6[illegible] percent), adoption by their own employees (58 percent) systems security (51 percent) and network performance (50 percent)

Durham describes this by saying that e business entails a high degree of flexibility and willingness on the part of both business and the customer to experiment

This, he noted "is a scenario where everybody wins."

—*Newsbytes*

Retail Council of Canada ensures UR digitally enabled

By Stefan Dubowski

The Retail Council of Canada (RCC) says it knows what it takes for businesses to go "e"—and, with a new suite of services, this organization wants to share that knowledge.

Recently RCC unveiled its UR services. According to Michael Eubanks the group's vice-president of information technology and e-commerce RCC has heard the hue and cry of retailers trying to go digital.

"We have identified the core hurdles that online retailers must address and we have responded with solutions that will save them time and reduce their frustration" Eubanks said in an RCC statement

Last month IDC Canada (http://www.idc.ca) a research firm unveiled its *National Online Retail Study* This report said Canadian retailers were slow to adopt the ways of IT

But Randy Scotland RCC's vice-president of communications took the findings with a grain of salt. "One thing has become abundantly clear," he told CanadaComputes.com in an earlier interview "If you don't do it right the first time, you're going to run into problems"

UR almost acts as a response to IDC's research The organization targeted privacy and security concerns, fulfillment expectations and promotional tools with UR

To address electronic mailing options, e-commerce administration requirements security and awareness solutions, RCC forged alliances with Canada Post (http://www.canadapost.ca) Scotiabank (http://www.scotiabank.ca) Deloitte & Touche (http://www.deloitte.ca) and BigOrange@OB com (http://www.bigorangeatob.com)

The idea RCC says in its statement is to make digitalization as easy as possible for retailers. Mind you the group says these services are for RCC members only.

You'll find more information about UR at Retail Council's Web site (http://www.retailcouncil.org)

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Move over wireless carriers!

Canadian startup takes high road to broadband mobile Internet service

By Stefan Dubowski

A new Canadian company plans to unveil an orbiting high speed mobile Internet service soon, but history suggests C Comsat Satellite Systems Inc. should step carefully.

If this system works, C Comsat could undercut another, oft mentioned high-speed wireless service. Network builders and wireless carriers say 3G (third generation), the upcoming iteration of untethered high speed Web access, describes future mobile computing.

But Leslie Klein, C Comsat's president, seems to think otherwise. "We've had this for three years," he said during a recent interview. "We've kept it a secret, experimenting on it."

Development wasn't easy, thanks in part to politics, Klein said. C Comsat tested its service with the Coast Guard. Although the organization enjoyed this fast-acting Web service, the government had a bone to pick with one of C Comsat's partners.

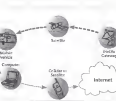
The company had to walk away from its first satellite as a result.

"We were in the middle," Klein said. "We demonstrated to the Coast Guard, that yes, they could use this. But we didn't want to get involved in a political fruit bowl." (Read: C Comsat didn't want to be caught between the satellite operator and the government.)

Canada has had a rough run with satellites in the past. Matthew Fraser's book, *Free-For All*, outlines the debacle. In 1969 the federal government created Telesat Canada, a satellite company built to withstand an invasion of U.S. television content from the sky.

"Yet Canada's technological nationalism in the skies quickly encountered less lofty realities," Fraser writes. "Telesat, while a public corporation, soon fell under the control of Bell Canada and other major phone companies, which owned nearly half of Telesat's stock.

"Telesat languished under utilized for more than a decade." The federal government decided satellite broadcasts could carry television signals to remote cable operations, but even this "satellite-to-cable" system "immediately began losing money, partly because it was offering Canadian signals only."



According to Klein, however, the satellite broadcast landscape has changed significantly in Canada. Bell has its ExpressVu television service and Canadians can access StarChoice's digital TV signals from satellite, for example.

"But nobody offers high speed [Internet] access on the commercial side," Klein said.

It's a void C Comsat wants to fill. This company won space on Canada's Anik satellite, combined as many as 14 low speed channels and created one fast pipe.

The trouble is, this pipe only works quickly one way: down. Klein said its commercial wireless high speed service—for trucking companies, shipping fleets, etc.—pumps 400 Kbps.

But only one way? It's a problem, said David Ellis, an industry consultant with Omnia Communications Inc.

Sure, right now, "for Web browsing and email, that isn't a big issue." But, he added, "eventually we're all going to want upstream bandwidth. That will limit [satellite companies] in the long term if they don't have a work around for it."

Klein agreed that Web surfers care more about download than upload speeds. But said "within a year at the max," C Comsat will have symmetric wireless broadband service—equally fast both ways.

Continued on page 104

Two-way messaging grows up

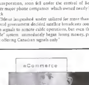
Two years ago, there was a lot of noise about a completely wireless handheld that would allow you to connect to the Net and get information no matter where you were. It would send packets only as necessary and would feature special client programs with predetermined HTML frameworks residing on the handheld, to further reduce the amount of information that needed to be sent back and forth. With it you could retrieve weather information, track the status of a delivery or check email. That fantastic device was... the Palm VII (bet you thought I was going to say BlackBerry).

Well, the Palm VII was never released in Canada. Thankfully, wireless providers have stepped up to bat, making use of enhanced paging hardware. One device using this technology is the BlackBerry, which is manufactured by Waterloo, Ont. based Research In Motion (RIM). The BlackBerry comes in two different models, the 950 and the larger 957 (also known as the Internet Edition because of its larger screen).

It's probably most accurate to think of the BlackBerry as a very enhanced pager. In fact, both models act as a pager but roll the paging information into the device's messaging component. When you receive email or a page, the device notifies you with an alert sound, then stores both in your messages folder. Since the device features two way communication, you can reply to the email at your leisure using the tiny keyboard built into the device.

This keyboard is actually one of the big advantages the BlackBerry has over the Palm VII, which requires stylus input, all of the special characters you

Continued on page 105



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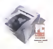

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Move over wireless carriers!

Continued from page 100

Jim Carroll, a computer industry observer and author, took issue with C-Comsat's claimed speed. After all, 400 Kbps is awfully fast. "My reaction is, I never believe it until I see it. Over the years I've seen every other connection run into barriers."

Eric Rasmussen, a senior consultant with TeleChoice, a research firm, said he questions C-Comsat's entire mobile model. "They're doing wireless high speed data. If they're doing that right now, I'd be surprised."

Why?

"Nobody else is really doing it. And it's much harder to solve," Rasmussen said. Mobile services via satellite require an angled dish. "If you're moving around, the dish has to move."

The upshot is, if C-Comsat's service works well, this company could be on to something big. Plus it has first mover advantage.

But mobility isn't C-Comsat's only route to profitability.

Klein said the company would take on fixed Internet carriers, like cable companies and telcos with high speed Web services for the home.

But at what price? Satellites are expensive to keep and maintain, Rasmussen said. Would C-Comsat's service reflect this premium?

Klein said fixed high speed Internet access would be priced at $40 per month. That's no worse than Bell Sympatico's price for dedicated subscriber line (DSL) connections. Mobile offerings start at US$50 per month.

"They have to be comparable," Carroll said. "If they're not price compatible, they're not in the game."

Rasmussen notes C-Comsat's glowing opportunity. "A satellite can cover a huge territory and overlap the U.S.. I wouldn't be surprised if C-Comsat was targeting the U.S. market as well."

C-Comsat partnered with Hughes Network Systems to deploy its commercial product south of the border. C-Comsat won't, however, release its fixed wireless Internet offerings in U.S. homes.

According to Klein, Hughes has its own plans.

Ellis said C-Comsat's service might speak to other satellite operators, too. Bell offers a "token" Internet access through ExpressVu. "The time may come now that companies are bundling so many things. C-Comsat might have something to offer."

Meanwhile, history repeats itself, even beyond Canada's borders.

In 1998, online reports said Hughes' own fast Internet connection, offered through its subsidiary DirecPC, wasn't as fast as promised.

Earlier this year Iridium, a satellite cell phone company, gave up on its orbiting transceivers.

"It took them five years to design it and five years to launch," Rasmussen said. "But they were charging $2.50 per minute. It wasn't sustainable."

Will C-Comsat be able to overcome the curse of the bird? Klein seemed to think so. The satellite is in orbit and, thanks to the company's channel aggregation scheme, upgrades come from the ground.

This company hopes to take over as a "last mile" enabler for remote Canadian communities.

Klein said these days, high speed Internet connections reach far-off places via microwave.

Such transmissions can carry DSL connections up to 64.4 km (40 miles) away from the central office.

But consider a satellite's footprint. 64.4 km isn't far at all. Plus, with microwave transmissions, "it can become very expensive," Klein said. "You have to build the towers."

Besides, Carroll has a different view of history than Fraser. Carroll had a Telesat dish and he liked the satellite service.

And consider Globalstar, another cell phone satellite company.

According to Trent Ernst, contributing editor to CanadaComputes.com, "A sweet toy to play with, and the best variation on the satellite phone theme yet, but probably not practical for most cell phone users. However if you live or work in an area outside cell phone reception, and/or without landlines, this might be something to seriously consider, especially if buying the Globalstar would cost less than stringing telephone wires.

"The big caveat is Iridium, which went belly up leaving thousands of users with very expensive bits of moulded plastic."

C-Comsat went public in August on the Canadian Venture Exchange (CDNX) in August. The company's initial public offering came in at $1. Klein said a C-Comsat share is worth between $1.75 and $2 these days.

—*CanadaComputes.com*

News from Central Asia

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Two-way messaging grows up

Continued from page 100

need for email and Web functionality are included in the keyboard by using the function key, and the symbol option, which means you don't have to spend a lot of time learning the special Graffiti notation for all of the special symbols for Internet use The keyboard is very tiny which could cause some problems for people with larger fingers Most people should find the setup fairly easy to use, once they get used to a two thumb method of data entry

There is also a jog wheel on the right hand side of the BlackBerry for quick scrolling through menu options and email messages A back button takes you quickly to the previous menu.

The other big feature of the BlackBerry is its Web surfing capability While it's true that the Palm VII roughly simulated the experience it required dedicated client packages to go out and retrieve data In other words if you wanted to track a package you shipped you would need a client from that courier company loaded onto your Palm VII The BlackBerry on the other hand, will allow you to surf anywhere you like offering a less restricted Web browser The downside to this is that you have a limit on the size of page that can be displayed, and if the Web pages you like have a lot of extraneous data the page will be truncated For this reason, the wireless service providers feature their own portal, with a number of Web links optimized for the wireless experience, providing quick and clean downloads that don't run into problems with page truncation

The disadvantage? Well at this point there are quite a few developers writing applications for the Palm platform, which means your Palm device would have a lot more flexibility in the non wireless arena Still, the BlackBerry comes with all the basics (calendar, contacts calculator email a task list and an alarm), and these third party applications may be irrelevant to many users, anyhow

Both Rogers and Bell Mobility offer BlackBerry devices as part of an enhanced paging service plan.

Rogers (http://www.rogers.com) service includes Go Web Internet access, and comes in three service plans for airtime the occasional usage plan (75,000 characters per month) is $25 monthly frequent usage (250 000 characters) is $35, and high usage (unlimited characters) is $50 U S roaming adds $25 per month to the bill

Bell Mobility (http://www.bellmobility.ca) also offers a version of the BlackBerry, with unique model numbers to indicate the frequency band each operates on (the BlackBerry 900 series operates on a 900 MHz frequency while the 800 series uses an 800 MHz frequency) The 850 comes in at $299, and the Internet Edition 857 sells for $399 Unlimited airtime costs $50 per month and U S roaming adds $25 per month to the total. Bell's devices make use of the Neomar web browser with numerous content providers offering optimized content

Bell Mobility's e-Page

In mid October Bell Mobility launched a new two way messaging service called e Page, along with an enhanced paging device manufactured by Motorola The Motorola PageWriter 2000X looks a bit like a shrunken notebook computer with a clamshell design that opens to reveal a small monochrome screen and QWERTY keyboard

E Page is Mobility's brand name for two-way enhanced messaging—essentially sending and receiving email and paging Like RIM's BlackBerry, the PageWriter 2000X comes with a number of electronic organizer functions including task list address book calendar, and memo pad And like the BlackBerry, the PageWriter offers always connected messaging inherited from pager technology However the BlackBerry service offers Web surfing in addition to two way messaging.

The e-page service operates on Bell Mobility's Reflex paging network, with U S roaming available The service was initially available in Ontario and Quebec, but the company said it will be extended to major cities in Western Canada by the end of 2000

—*Sean Carruthers and David Tanaka*

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The AMK-3333 was designed primarily for Overclockers but they are also good for the casual and corporate end user

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Original Digital Divas prevail in domain name dispute

By Jeff Evans

Digital Divas (http://www.digitaldivas.com), an online organization of women in technology, announced recently that a name dispute with Microsoft Corp. had been resolved in the Digital Divas' favour.

Formed in 1997 the Digital Divas provide online help and advice to technology users. The group launched their Web site in June 1998.

In January 2000, Microsoft boss Bill Gates introduced that company's "Digital Diva" Stacy Elliott, who was to serve as a kind of corporate goodwill ambassador and answer lady, providing useful information and putting a human face on technology for Microsoft's customers, particularly the less technically adept ones.

In April 2000 Microsoft Corp launched a Web site called Digital Diva, hosted by Elliott and offering help and advice to users of technology—just like the Digital Divas.

Microsoft did not discuss its Digital Diva program or Web site with the original Digital Divas organization, nor did it have permission to use the Digital Divas name or a similar domain name for the corporation's diva Web site.

Digital Divas consulted its legal counsel, and opened discussions with Microsoft concerning alleged infringement of copyright, domain name, and intellectual property. It also made its dispute publicly known on the Web, generating a good deal of sympathy and support.

After several months of talks, an agreement was announced on Oct. 6, in which Microsoft withdrew its Digital Diva site from the URL, http://www.microsoft.com/digitaldiva/default.asp, replacing it with a notice that the site was to be renamed and improved.

Following the agreement, the Digital Divas declared victory thanking those who supported their David vs. Goliath stance, and claiming that Microsoft had been persuaded of the justice of the Digital Divas' prior claim, without the need for a resort to the courts.

Microsoft, which has vigorously defended its own intellectual property rights ever since Bill Gates' famous "Open Letter to Hobbyists," dated Feb. 3, 1976, which urged respect for copyright law, found itself between a rock and a hard place.

Although Microsoft could conceivably have waged a delaying campaign against the Digital Divas, such resistance to a pretty obvious instance of violation of copyright, domain name, and intellectual property could only have cost the company a great deal of bad publicity, as well as possible legal and financial penalties.

The Digital Divas were so obviously in the right, and were so obviously unafraid of a legal tussle with Microsoft, that the best resolution to the conflict appears to have been for Microsoft to quietly and graciously throw in the towel, and move on.

One is left wondering why Microsoft didn't do due diligence on the Digital Diva name, which was well known, and how, when the company rolled out its Digital Diva program at the Consumer Electronics Show (CES) on Jan. 6, it could have built such a high profile consumer relations campaign on such a flimsy foundation.

When we did a search on the Google search engine (http://www.google.com) for Digital Diva, we found more than 42 000 references, with the original Digital Divas and the Microsoft version hopelessly tangled and enmeshed with each other. This situation must have been obvious right from the beginning of Microsoft's ill-fated diva project.

The rollout of the Digital Diva program is detailed on the Microsoft site in a press release that can be found at http://www.microsoft.com/presspass/press/2000/Jan00/DigitalDivaPR.asp

Coming a few months after a similar cave in by Coca Cola to demands by Greenpeace that Coke stop using environmentally unfriendly refrigeration technology, the Digital Diva dispute shows how even small organizations can leverage the Web to fight the largest corporations in the court of public opinion, and win.

For our readers' benefit, we have included the announcement of the settlement with Microsoft posted at the Digital Divas' Web site:

> After several months of negotiations between our attorneys at Moses & Singer and Microsoft's attorneys, we are EXTREMELY pleased to announce that we have reached a voluntary settlement of this dispute with Microsoft without the need to resort to the courts.
>
> In the simplest terms, Microsoft's Stacy Elliott will no longer be known as the "Digital Diva" and Microsoft will no longer use digitaldiva.com in connection with content like that formerly available at this site. Also, in accordance with our settlement agreement, Microsoft has posted a notice at digitaldiva.com. Please visit and see for yourself.
>
> The Digital Divas are thrilled with this result, which would not have been possible without the support of the entire Internet community. You all embraced our cause with great enthusiasm and passion. The assistance we have received from all of you was invaluable, and we cannot thank you all enough for helping us to achieve a positive result in this dispute.
>
> This is a victory for all of us to share, one which preserves the integrity of trademark and intellectual property rights on the Web, and one which will hopefully set an example for the appropriate and peaceful resolution of future disputes of this nature.
>
> All of the Digital Divas would also like to say a very special thank you to Mark Mandersman of Moses & Singer for his expert negotiation skills and his undying commitment to our cause...
>
> The Digital Divas were founded in 1997. Through use and publication of that name, the group acquired trademark rights in the name, including the domain name digitaldivas.com where our Web site has been located since June 1998. The Digital Divas Web site features a D'Zine where our members offer articles, tutorials and advice about computer and Internet use and applications.
>
> In April 2000, Microsoft launched a Web site located at digitaldiva.com, promoting their own "Digital Diva," Stacy Elliott, as their ambassador to the public. This Web site offered articles, "how-to" tips, and advice on computer and Internet use and applications...
>
> The Digital Divas are an online professional network of women working in the internet and computer fields. Our group was founded in October 1997 by Dana Whitmire and has grown from a handful of members to 71 members worldwide. The reputation of our group has spread far and wide through the computer and internet community in the last three years. The Digital Diva name has become associated with ethical Internet practices as a result of our founding of Grey Day, the annual copyright awareness event, giving and contributing to the Internet community by publishing a monthly e-zine, which includes articles, tutorials, and free Web site graphics to assist Internet and computer users. In addition, our members offer various of these items on their own Web sites.

—*CanadaComputes.com*

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International press council ratifies markup language for news

NEW YORK—Reuters (http://www.reuters.com), the international newswire, has taken the wraps off a specialized version of XML (extensible markup language) called NewsML, short for news markup language.

The new Web language has been ratified by the International Press Telecommunications Council (IPTC) and has already been embraced by a number of online newswire organizations.

As the acronym implies, NewsML is a specialist version of XML designed for the online news industry.

Nancy Bobrowitz, Reuters' corporate communications director, said the new Web presentation language will change the face of online news irrevocably.

NewsML, she said, is not a competitor to XML, but is based on the Web markup language.

"Basically it allows Reuters to present a variety of news data, including text and pictures, in a standardized format. Because it's based on XML, it's platform independent, which means it allows for greater flexibility in the way that news is presented to people online," she said.

Because XML is extensible, Web pages coded with this markup language can be viewed in a variety of formats, including standard full-colour PC-based Web browsers, right through to small WAP (wireless application protocol) screens on mobile phones.

This is important for news content providers as it means they only have to create one set of Web pages that can be viewed on different Internet terminals, whether wireless or not.

From a Web users' perspective, this is transparent, of course, but XML does mean that more standard Web pages can now be viewed using a mobile Internet device, without the information providers having to create a second set of Web pages especially for WAP users.

NewsML does the same for online news organizations as XML does for Web page creators—it makes their lives easier.

Bobrowitz said that, since the IPTC has just ratified the NewsML standard, it will mean that a growing number of online news organizations will embrace the new standard.

"The IPTC is itself comprised of news media professionals. They've agreed to the new standard, so it will take off," she said, adding that Reuters is now in the process of working out how its systems will be streamlined as a result.

"For us, it means that we can get our news, pictures and sound out to our subscribers and viewers more quickly. A newspaper may subscribe to our newsfeed, and maybe our picture service. With NewsML, they can get all of their news data from one single source," she said.

Alongside Reuters, the Agence France-Presse (AFP), BusinessWire, the Press Association, ScreamingMedia, UPI, and Dow Jones's WSJ.com have also agreed to support the NewsML standard.

From a consumer's viewpoint, it will mean that more online news will become multimedia—provided the news organizations support the new standard of course. The IPTC's Web site is at http://www.iptc.org.

—*Newsbytes*

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Lycos voice portal recognizes speech

WALTHAM, Mass.—One day after Web portal Yahoo Inc. unveiled a suite of voice-powered information services in early October, competitor Lycos Inc. (http://www.lycos.com/) has raised the stakes with the launch of phone-in Web surfing that includes voice-recognition technology.

Lycos, based in Waltham, Mass., boasts that subscribers of its telephone service can access email and other Internet information hands free, using voice commands to navigate instead of keying in touch-tone signals.

Santa Clara, Calif.-based Yahoo had launched Yahoo By Phone, a service that uses Internet telephony technology from Net2Phone Inc. and text-to-speech software from SpeechWorks International Inc. to serve up audible email along with other Yahoo content. The Yahoo service also offers users a free voice mailbox that can be accessed by telephone or Web browser.

Like the Yahoo service, the voice-powered offering from Lycos supports text-to-speech transformation of writing email as well as headline news, stock quotes, weather and horoscopes. At both Yahoo and Lycos, subscribers configure their cache of news and information by visiting personalized Web pages on the companies' My Lycos and My Yahoo sites.

Lycos, which is offering its voice service under a Lycos Anywhere label that also encompasses wireless delivery of content to cell phones and handheld computers, said phone-in surfing will be available initially in just five U.S. markets: Boston, New York City and northern New Jersey, Chicago, San Francisco, and Los Angeles.

Ron Sege, executive vice-president of Lycos, said the company could expand its Lycos Anywhere services "potentially around the globe" with the help of telecom carrier partners.

The company first announced voice plans in May, when it said its partner in such a venture would be Quack.com Inc., which develops voice portals with technology from SpeechWorks. However, in August, Lycos announced that its Web-to-phone efforts would be backed by Boston-based Mobilee Inc. (formerly Shoutmail.com). In late August, America Online announced it was acquiring Quack.com.

—*Newsbytes*

Microsoft SideWinder Force Feedback Wheel

From: Microsoft Corporation
http://www.microsoft.com/sidewinder
Estimated street price: $208.99

So, you like racing games, eh? If you're really serious about racing, you've probably already looked at a steering wheel. If you're interested in more realism, you may have even looked at a wheel that incorporates Force Feedback technology. Microsoft feels your longing, and has added a Force Feedback steering wheel to its SideWinder line of game controllers.

The wheel comes with a nice clamp and lock mechanism for attaching it to a desktop. This setup is nice, because you don't have to spend much time messing around with the clamp... you tighten it most of the way then flip down the lock. Voila, it's done! Then you just have to plug in the power, plug in the pedal module, and plug in the USB cord. After you install the SideWinder software, you're ready to race. Well, as soon as you have a racing game with Force Feedback support, that is.

Luckily, the wheel ships with the full version of Microsoft's Monster Truck Madness 2. During testing, though, we used Mobil 1 Rally Championship, from Electronic Arts (http://www.ea.com/rallychampionship, about $40). We drove our car in a variety of weather conditions and on different types of terrain to give the Force Feedback component a healthy workout. Getting used to the handling of the cars was a bit strange at first, but once you get used to driving sideways, it's full speed ahead.

We found that the wheel handled very well, for the most part, with a lot of buttons within easy reach. Force Feedback was mostly a matter of personal preference: some of our test drivers thought it was quite realistic, while others weren't so convinced. I thought it was A-OK, all things considered. The wheel is capable of 100 different types of reactions, which gives programmers a great deal of latitude in creating a realistic simulation.

What is more troublesome overall is the fact that when you really get into the action, the pedals tend to slide around a bit, and the wheel may also move a bit. Short of gluing them down, this is bound to happen with most wheels, though.

—*Sean Carruthers*

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< HOLIDAY GIFT GUIDE >

Two very sweet digicam offerings from Canon

In the digital camera market Canon has been sort of ho hum—serviceable but predictably me too with its PowerShot line of digital cameras in comparison with more compelling offerings from Kodak, Nikon, Olympus and Sony. But just in time for Christmas, Canon has come up with two showstoppers—standout cameras at the low and high ends.

The Canon PowerShot S100 Digital Elph may be big in name but it also is truly a mighty mite in size, weight and compact form. The Elph—which gets lost in a shirt pocket at 8.6x5.6x2.8 cm (3.4x2.2x1.1 in.) and only 190 g (6.7 oz.)—will be the delight of hikers, travelers and camera lovers in general for its superior engineering.

This is a 2.1 megapixel digital camera with 35-70mm equivalent optical zoom lens, which records on CompactFlash (CF) cards in three modes: 1,600x1,200 pixels at low JPEG compression (super fine mode), 1,600x1,200 pixels at four times compression (fine mode), and 640x480 pixels at four times compression (small mode).

Did I mention the Lithium Ion batteries, white balance settings, exposure correction, built-in flash, self timer, USB cable output, macro shooting, black and white imaging, and continuous shooting capabilities? Given very good image quality, it is no surprise the price, at about $750 is starting to creep up to the original suggested retail price of $899 with surging demand.

For the prosumer

At the top end, prices typically reach $10,000 to $15,000 for SLR digital cameras that matching 35mm SLRs in features, like the Nikon F5 or the Canon EOS. But, no more.

Nikon's D1, which sells for $8,000 to $9,000, and Canon's spectacular EOS D30, which sells for $4,500 (both prices are for the body only), have brought top end SLR digital cameras down to the power user.

As the name implies, the EOS D30 has all Canon EF auto-focus lenses and uses many of the same icons and shooting modes borrowed from the EOS film camera.

However the D30 is completely engineered for the digital domain. It has three metering and eight operating modes, which may seem a bit overpowering at first, but with the intuitive design one quickly learns to extract the most out of this professional camera.

Favourite feature: with one charge, the Lithium Ion battery takes 540 shots (assuming the built-in flash is not used). One problem: the camera will appear in late November and already has back orders.

—*Jacques Surveyer*

Know when to fold 'em

NB—Researchers are hoping for the success of the Seti@Home project, in which idle computers are put to use scanning data from the heavens, with their new Fold@Home project, designed to unravel the mystery of protein folding, or how proteins self assemble. Why do we want to know how proteins fold? Researchers say the way they fail to fold causes such diseases as Alzheimers, cystic fibrosis, even Mad Cow disease to develop. It's a complex and computationally demanding subject, which is why volunteers are needed in this massive distributed computing project. Down-time on Windows and Linux machines (sorry, no Macs) are needed by the researchers at Stanford University.

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Dazzling the video crowd, sort of

We put Dazzle's latest video capture and editing package through its paces, and offer you the director's cut

By Jacques Surveyer

If a picture is worth 1,000 words, then a video clip may be worth a million. And more savvy Web sites are using video clips than ever before—taking advantage of this medium's ability to explain and demonstrate.

Even better video technologies—high resolution digital video cameras selling for less than $2,000, streaming video server software, and Adobe Premiere and Macromedia's Flash and Director applications—help move putting film on the Web within reach of serious amateurs as well as small- to medium-size businesses.

In this review, we look at a USB-based digital capture card, Dazzle, to see if its quality and speed of operations match up to our Web/video needs.

Dazzle Photo Maker USB
From: Dazzle Multimedia, Inc.
http://www.dazzle.com
Street Price: $150
Minimum system requirements: Pentium II 300 MHz based PC or similar Mac with 64 MB of RAM. Windows 98/Me or Mac OS 8.6.
Overview: Dazzle video capture combines video/TV snapshot and film clip capture capabilities.
Out of box: Installation and operation after reboot is problematic. Documentation is weak.
Pros: Able to capture snapshots and video clips with a variety of options/settings. Quality of images is pretty good.
Cons: Requires lots of memory and processing power—even Pentium II system bogs down in recording.
Summary: Versatile capture software requires hefty computing resources.
Overall rating: 4 out of 5

Out of box

Out of box experiences are getting more interesting these days as the Windows desktop OS now spreads over six editions: 3.x, 95, 98, Me, NT and 2000. Dazzle's support for these platforms zeros in on the current mainstream consumer. It bypasses support for Windows 3x, Windows 95 (too old?), and Windows NT/2000 (too business-focused?), concentrating instead on Windows 98, Me and Mac OS 8.6. Unfortunately, it is easy to miss these restrictive requirements as other Dazzle products support the other Windows OSes. In the multimedia and graphics card world, OS and hardware incompatibility are starting to peak again, so buyers beware.

The immediate out of box experience is also disconcerting. Dazzle uses one manual for four products. These situations are always an adventure in figuring out what applies where. There is a specific quick-start guide, but it is fairly terse and does not have a good set of troubleshooting instructions. And if my experience is typical, you will need some help.

The software installs easily enough and the USB plug-in with built-in power supply is truly plug and play. But that sours quickly when you get constant messages, like "video capture device not found." With no FAQ (frequently asked questions) documentation or troubleshooting available in the manual or help files, it was off to the debugging merry-go-round:

- Check all the connectors, still no good.
- Reboot the machine, still no good.
- Turn the video on after starting up the program, still no good.
- Make sure no other programs are running, still no good.

Continued on page 114

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Dazzling the video crowd, sort of

Continued from page 112

- Check the connectors again—Houston, we have lift off

After several more starts I learn the following is the winning sequence:

- Make sure no other programs are running
- Have the video recorder running
- Break and restore the USB to Dazzle device connection just after starting the Dazzle Capture software

Once this sequence is followed the snapshot and capturing of video clips was successful

Performance

Having used Play's Snappy device for TV and video capture, Dazzle had to top some pretty good hardware and software to impress this reviewer. And Dazzle does do better than Snappy by offering more snapshot capture modes and five more file output options (two more JPEG settings, as well as TGA, PCX, and TIFF). And it's nice to be able to power up directly through the USB port without the need for two double AA batteries, which are required by Snappy. In addition, Dazzle offers more video clip capture capabilities.

But the bottom line is image quality, and Dazzle matches Snappy 3.0 very well. At 640x480, Dazzle snapshots were clearly better in colour fidelity right out of the box, i.e., without image correction.

However the image graininess was the opposite of what we'd expected. Lower quality TV and video sources were much better from Dazzle relative to Snappy, but high quality video images were slightly worse in graininess for Dazzle.

Moreover, Dazzle requires all of your computing power. Dazzle recommends 32 MB of memory—in actual use, even 64 MB is low. No other programs should be running (we had several crashes when any other program was running at the same time as Dazzle). And even with a 200 MHz Pentium II with MMX based system, 640x480 snapshots took three to 20 seconds to process. Video clips at 320x240 and longer than 30 seconds would freeze the system. Switching to a 433 MHz Pentium III with 96 MB of RAM resulted made much longer video recordings and faster snapshots possible—to a degree.

However, some of Dazzle's problems are clearly not with the hardware, but rather with its photo album display software. As more than 10 to 15 pictures are collected in the album, Dazzle software took longer and longer to refresh the album. This is a problem because you can't capture another picture until the album finishes refreshing. Trying to capture Olympic event images proved very frustrating. Either you had to stop, download, and clear the album after 10 to 15 snapshots, or wait 20 to 45 seconds between snaps. I could find no way to turn off the photo album.

In addition, we found Dazzle software tended to freeze if taking movie clips of long duration or with any other programs running.

Balancing off these software glitches Dazzle provides a lot of good free software to manage your snapshots and clips including Ulead's excellent PhotoExpress, Real DVC Direct MPEG Video Library, Microsoft Media Player 6, Front Page Express, and NetMeeting. In addition we tried the MPEG output with Adobe Premiere 5.1 and Macromedia Flash 5 and found both equal to the task of editing and using Dazzle snapshots and video clips effectively.

In fact, Dazzle will have users looking for good video editing software. MGI VideoWave 4 (http://www.mgisoft.com) at $120 and Adobe Premiere (http://www.adobe.com) at $720, are two products at either end of the price spectrum that are worth consideration.

In summary, at $130, Dazzle is cheaper than Play's video image capture stalwart, Snappy, yet its images are as good, if not better, in colour quality. These images and video clips are not broadcast quality, but depending on the quality of the video source, can easily be used as video for personal or small business Web sites.

Dazzle's documentation shortcomings and hefty computing resource requirements are the only blots on an otherwise solid entry level product into the world of video snapshots and clips. ❑

Jacques Surveyer imagines himself to be a respectable photographer. See if the Dazzle images posted at his Web site, http://www.mlaramp.net/~jbsurv, pass muster.

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Get creative with screenshots

Chances are that sooner or later you'll need to include a shot of a computer screen in a document. You may want it to illustrate how to complete a task or to use as a record of how your screen looked when something went wrong with your PC. Screenshots are pretty easy to take and they can give documents some visual clarity. This month I'll show you how to grab screenshots and manipulate them to get some great effects.

Tools

You don't need special software because Windows can take screenshots and allows you to paste them into documents. However, if you want to do more than use the occasional screenshot, using graphics software would be helpful.

Something like the shareware application PaintShop Pro lets you gather screenshots and includes tools for cropping and adding text and lines to draw attention to various parts of the image. Using these tools, you can create a composite image from a number of screenshots, allowing you to show your reader a number of steps all at once.

Taking a screenshot

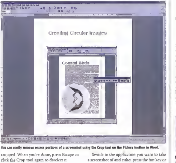
Taking a screenshot is as simple as setting the screen up as desired, then pressing the Print Screen key on your keyboard. When this key is pressed, an image of the screen is placed on the Windows Clipboard. You can paste the image into any document by selecting Edit, then Paste.

While pressing Print Screen takes a shot of the entire screen, you don't always need such a large image. If all you only want to capture the current window hold the ALT key as you press Print Screen. Depending on what is on the screen at the time you take the shot, the image you get will be a dialogue box or the entire window.

Cropping in Word

Once you have pasted the image into a Word document, you can size it to suit your needs. You can also crop it to remove any portion of the image you don't want to display.

To do this, select the image and, from the Picture toolbar, select the Crop tool. (If the Picture toolbar isn't visible, choose View, Toolbars, then Picture to display it.) Hold the mouse pointer over one of the sizing handles on the edge of the image and watch as the pointer changes to the shape displayed on the Crop button on the toolbar. Drag any of the image handles toward the centre of the image to crop it. Don't worry if you make a mistake: you can simply drag the handle in the opposite direction to reinstate the portion you cropped. When you're done, press Escape or click the Crop tool again to deselect it.



You can easily remove excess portions of a screenshot using the Crop tool on the Picture toolbar in Word.

You can use this cropping technique to reduce the screenshot so it displays only the area you want to highlight. However, if you need a series of shots of toolbar buttons, for example, you'll find that using large images and cropping them will bloat the size of your file unnecessarily. In addition, if you don't have enough memory available, Word may have problems displaying your document properly.

At this point you should move to using a graphics program like PaintShop Pro to edit the screenshot. It will also allow you to grab pictures of the tooltip and mouse pointer in addition to the toolbar buttons.

Using PaintShop Pro

PaintShop Pro's screen capture utility will take a shot of your screen with or without the cursor being visible. From inside PaintShop Pro choose Capture, then Setup. From the left of the dialogue, select the portion of the screen you want to capture. Area allows you to select the portion of the screen you want to capture manually; a Full Screen copies the entire screen, Client Area copies the input area, which will vary according to what is on the screen, and Window copies the entire current active window.

You can select a hot key to use for capturing screenshots—F11 is a good choice, or select a time delay so PaintShop Pro will take the shot after a specified number of seconds elapse. Choose to include the cursor and, if required, set it to take multiple captures. Finally choose Capture Now to begin the process.

Switch to the application you want to take a screenshot of and either press the hot key or wait until you hear the small sound that indicates the timer has expired and the shot has been taken. If you enable the multiple captures checkbox you can continue shooting screenshots.

When you are done, switch to PaintShop Pro and you'll see the screenshots in the window. You don't have to turn off the screen capture utility as this is done automatically when you return to PaintShop Pro.

Select the Zoom tool and click on a screenshot to view it. To crop it, choose the Selection tool and drag around the part of the image you want to keep, then choose Image, then Crop to Selection to eliminate the unwanted area. You can either save this image and add it to your document by selecting Insert, Picture, then From File or you can choose Copy to save it to the clipboard, then switch to Word and choose Edit, then Paste.

Creating composites

To show your reader a program's menu and the dialogue that is displayed as a result of selecting a particular menu option, you'll need to create a composite of two images. The first will be the open menu with the item highlighted and the second will be the result when you choose that selection. You'll need to create this as a composite simply because you'll never see both the menu and the dialogue open on the screen at once.

To do this in PaintShop, begin by selecting Capture, Setup, then set your capture preferences before clicking Capture Now. Switch to the application and choose the menu options

Continued on page 118

Java Tutorials: Part 4

Java's eight basic datatypes

By Jacques Surveyer

In our last Java tutorial, we created a third Java program containing four classes. These classes were effectively new datatypes in Java for Point, Line, and Circle. Although the class definitions were fairly simple, they nonetheless revealed some of Java's flexibility and power—users can create then manipulate exactly the objects/datatypes they need in Java.

With Java, users do not have to rely on fitting into the predefined primitive datatypes and objects as provided in a language. However all of the derived objects draw upon Java's eight basic or primitive datatypes plus the most important predefined class, String, as shown in Fig. 1.

These basic datatypes match very closely to what is available in C, C++, Fortran, Visual Basic, and other popular languages, although those other languages have a number of additional datatypes such as complex, date, decimal, time, and variant. However the designers of Java felt that these additional datatypes were really components of the basic datatypes and have left most of these special types for users to implement. There are some Java predefined object datatypes including BitSet, Calendar and String that help to complete the eight basic datatypes.

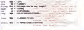


Fig. 1 Java Datatypes, Range of Values, Storage Size and Default Value.

Fig. 1 lists Java's eight basic datatypes and it is interesting to note that six (byte, short, int, long, floating point, and double) are numeric datatypes. Byte is also used extensively for general data manipulation and input/output operations, while char is used for character manipulation and as the basis of the String class. Unlike most other languages, including C and C++, char in Java is not one but two bytes long because it uses Unicode characters that allow almost all of the major languages and their letterings/scripts to be represented (over 60,000 individual characters). The ANSI character set is a subset of Unicode.

Finally there is the boolean type that represents one binary bit with one of two values: 0 = false, 1 = true. Java has a predefined class called BitSet that literally stores a set of bits and allows bit operations like and(), clear(), or(), set(), and xor() to be performed on bits. We wrote a small program to test the relative speed of operation of the two datatypes, BitSet versus boolean.

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Java's eight basic datatypes

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```
import java.util.*
public class bitsets{
// The trickiest part is to get the right time format
static java.text.DateFormat f =
java.text.DateFormat.getTimeInstance(java.text.DateFormat.ME
DIUM);
public static void main(String args[]){
String time = f.format( new java.util.Date()); // sets current
time
BitSet abits = new BitSet(500000); // Yes, 500 thousand bits
System.out.println("Creating BitSet of size 500,000 at "+time);
// Now loop 100 times through setting all 500,000 bits
for(int j=1; j<=100; j++)
  for(int i = 1; i<499999; i++)abits.set(i);
time = f.format( new java.util.Date()); //Current time
System.out.println("After setting BitSet
"+time+abits.get(499999));
boolean[] bool = new boolean[500000];
time = f.format( new java.util.Date()); //Current time
System.out.println("Creating Boolean array of size 500,000 at
"+time);
// The same here, for loop 100 times on nearly 500,000
booleans
for(int j=1; j<=100; j++)
  for(int i = 1; i<499998; i++)bool[i]=true;
time = f.format( new java.util.Date());
System.out.println("After setting Boolean
"+time+bool[499999]);
}
}
```

The results of running this test are somewhat surprising:

```
Creating BitSet of size 500,000 at 9:44:34 PM
After setting BitSet 9:44:38 PMtrue
Creating Boolean array of size 500,000 at 9:44:38 PM
After setting Boolean 9:44:39 PMfalse
```

It turns out the basic boolean datatype is four times faster than the specially built BitSet class. This example shows why using the Java Development Kit (JDK) directly in DOS can be so useful. Some Java articles implied that BitSet was essential for doing bit manipulations with its predefined operations. However, the penalty of slower (by a factor of four) runtimes was not mentioned. Only by being able to write and quickly test Java programs directly in DOS (or Linux, or wherever) can users experiment with the language and gain proven confidence with it.

Java numerics

Java's numbers follow closely those of C/C++ with one critical exception. Java specifies for each numeric datatype not only its exact size in bytes but also what underlying integer and more important floating point operations must be performed. This is critical because both C and C++ have different implementations of short, int, and long depending on what system C is running on. For example, C on the HP3000 has ints of two bytes in size, while on the 9000 series they are four bytes. Unfortunately this is common, so numeric operations are often not repeatable between versions of C or C++ on different hardware and/or compiler software.

However, C, C++, Fortran and Pascal all have an advantage over Java, their numeric operations can be compiled to machine code for a speed/performance advantage. Because Java does array bounds and other validity checks even if it were compiled (and there are good native compilers for Java applications from Tower and others) the Java numeric code would run slower than these other languages because of integrity checks. In a test of this, we converted the Numerical Recipe (see Resources below) POLINT.C into Polint.java. The conversion process was fairly simple (but see some of the conversion problems below). After running the two programs on the same Dell Notebook, compiling with Borland C++ Builder and Borland BCJ Java compiler respectively, we found the C++ code to be about 20 percent faster than Java as might be expected of a routine with extensive use of arrays.

However, the most interesting result of the exercise were the many datatype conversion problems encountered. Java is fairly finicky about converting values between various datatypes. Table 1 summarizes the results. First, boolean is not inter-convertible at all. Second, whenever converting between datatypes, if going from a smaller data size to a larger, no explicit cast is required (from byte to int, for example). All other cases may require a cast that is just an explicit request for conversion to a particular datatype and an acknowledgement that the programmer knows some information bits may get lost in the conversion process because of truncation and other causes. For example:

```
short sh = 124; int in = 47; float fl = 0; long lg = 232; double
db = 5.85;
in = sh; // No problem, 2 byte short is assigned to 4 byte int
fl = lg; // ERROR requires a cast as in, fl = (float) lg;
lg = db; // Even though same data size 8 bytes each,
ERROR!
lg = (long) db; // Cast is required okay now
```

In the conversion of the program POLINT.C to Polint.java, most of the time was spent putting in casts for conversions from int to float and double to float. The program refuses to compile without these casts. The only other tricky part was converting arguments passed by reference in method/function calls to static variables. However, the resulting code is filled with explicit casts that are harder to read and understand. If we had converted all the C float variables to double, no casts would have been required and that is strategy we will use in the future.

Another problem in converting C to Java was

Continued on page 119

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Get creative with screenshots

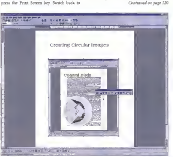
Continued from page 116

using the keyboard and stop just short of making the actual selection. With the menus open on the screen press your PaintShop Pro Hot Key to make the capture

Now make the menu selection so the dialogue appears on the screen If you want your user to make certain selections, do them now, and when you're ready, hold the ALT key and press the Print Screen key Switch back to PaintShop Pro and use the Zoom tool to display the screen capture file. Notice that when you have the Zoom tool selected, the left-mouse button makes the image larger and the right mouse button makes it smaller

Add the image of the dialogue to your screenshot by choosing Edit, Paste then As New Selection. The image of the dialogue will appear over the top of the image with "marching ants" around it indicating it is

Continued on page 120



This image can only be created by pasting part of one screenshot on top of another

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Java's eight basic datatypes

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finding equivalents for some of the C numeric functions. C simply has a much broader list of numeric functions than Java. In Table 2 we list some of the important Java numeric functions. Notice that Java provides all the usual calculator math functions plus conversion of numbers to and from strings. In addition to these functions, Visual Numerics makes available for free its JNL (Java Numeric Library), which is a series of Java classes that go a long way towards making Java much closer to C, C++, and Fortran in terms of numeric capabilities.

Finally one of the important divisions in Java is between the basic datatypes and all other objects. For example, basic datatypes are treated differently than objects in declarations and when used as parameters for functions/methods. For example, the statement float f1, f2, f3, immediately creates three float variables of four bytes each set to the default value of zero.

But Point pts, only creates the four byte reference to pts, which is set to null. Only by explicitly declaring Point pts = new Point(1.2,33.5), does memory get allocated for the Point object and its two double values. Likewise, when a basic datatype is used as a parameter in a method/function the parameter is by value (a copy of the basic datatype is made and passed to the subroutine). In contrast, an object parameter is passed by reference. This means that basic datatypes, when used as parameters, are protected from inadvertent change; object parameters are not. As we continue exploring Java we shall see more of these differences between objects and the basic datatypes. In fact, it is so important, that all the basic datatypes have their object equivalents: boolean, byte, char, short, int, long, float, and double. Go to the Java API reference and look up double to see how double doubles as an object. ❑

Jacques Surveyer is a consultant; for customized training contact him at jbsurv@inforamp.net.

Resources

Java 1.2 and JavaScript for C and C++ Programmers
  Authors: Michael Daconta, Al Saganich, Eric Monk, and Martin Snyder
  Publisher: John Wiley & Sons, Canada
  650 pages 1998
  ISBN: 0471183598
  Price: $85.50
  Pages: 31-95

Java in a Nutshell
  Author: David Flanagan
  Publisher: O'Reilly & Associates
  Paperback 668 pages 1998
  ISBN: 1565924878
  Price: $43.95
  Pages: 22-28

Beginning Java 2
  Author: Ivor Horton
  Publisher: Wrox Press
  Paperback 1100 pages 1999
  ISBN: 1861002238
  Price: $74.95
  Pages: 36-52

Numerical Recipes in C: The Art of Scientific Computing
  Authors: William H. Press, Brian P. Flannery, William T. Vetterling, Saul A. Teukolsky
  Publisher: Cambridge University Press
  Hardcover 1,020 pages 1992
  ISBN: 052143108S
  Price: $75.56
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Java Numeric Library (JNL)
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Practical Knowledge to Shape the New Economy

Get creative with screenshots

Continued from page 118

selected. Use the mouse to move it into position then choose Select, Selections, then None to remove the marching ants.

Creating fakes

Sometimes you simply won't be able to get an image of exactly what you want. For example, some toolbars have buttons that are greyed out and it's impossible, or very difficult to take an image of the toolbar with all the buttons active. You can, however, create the image yourself by shooting a number of images of the toolbar with various combinations of buttons active and use the Edit, Copy and Edit, Paste, and As New Selection options to create a "fake" toolbar that has all the buttons enabled and visible.

Another shot you may want to fake is one where a toolbar button has its tooltip displayed at the same time the tool is being used in the document. Because you can't have two mouse pointers active at the one time, you can never capture this with a single screen shot but you can create it! Do this by shooting two screenshots, one showing the toolbar with the tooltip visible and the second showing the tool in use. Make a selection around the toolbar button in the first screen capture and copy it using Edit, then Copy. The switch to the second screen capture, paste the selection in using Edit, Paste, As New Selection and move it into position.

Annotating the shot

Once you have an image in PaintShop Pro you can add text and other pointing elements to it to draw attention to what it is you want your reader to see. To add text to the image select a foreground colour and click the Text tool. Click anywhere in your image to bring up the Add Text dialogue. If you're using PaintShop Pro 6 or higher, click the Floating option button. Choose the font, size and other options, type your text in the area marked Enter Text Here, and click OK. The text will appear as a selection surrounded by marching ants. Drag it into position and add a drop shadow by choosing Image Effects, then Drop Shadow. Choose a colour for the drop shadow (black or white are good choices depending on the background colour of the image), set Opacity to 100 percent, and set Blur Horizontal and Vertical to five, and click OK. To turn off the marching ants choose Selections, then None.

You can also add lines and ellipses to your image to point to and "circle" important elements. To do this, use the Draw (or Line) or Preset Shapes tool, set a width of three to four pixels, and set the colour to red to help the shape stand out.

PaintShop Pro lets you create straight lines and curved lines, which are called Bezier curves, and which take a little practice to draw correctly. To draw a Bezier curve, select the Draw (or Line) tool and, from the Controls palette select Line type: Bezier. Drag across the image to draw a line then release the mouse button. Click and drag the line to where you want the tip of the curve to be. You can then click and drag at one other position on the line to even out the curve or simply click and the line will be set in position.

Add arrow heads to your lines using the Paint Brushes tool. Set the brush width to the same width as your line and draw them with a flourish!

Reducing file size

If you're printing documents in black and white you won't need to use colour images, so you can save space by reducing your screenshots to greyscale before you import them into your document. You should do this in your graphics software and not in Word because Word won't make the change permanent, so the file size won't be reduced. To do this in PaintShop Pro, choose Colors, then Grey Scale.

Adding screenshots to your documents is a great tool for illustrating instruction manuals and for creating procedures and training documents.

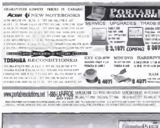
So, now that you know how you'll be your own graphic artist capturing images, and cropping and annotating them to illustrate your own documents like a professional. ☐

Helen Bradley specializes in writing hands-on tutorials. Her columns appear regularly in a number of publications in the U.S., U.K., Australia, and Canada. She also reports on the computer industry for Australian Radio. Contact Helen at helen@helenbradley.com.

Keeping up with Napster

NE—Legal news site, FindLaw, is making it easy to keep up with the Napster case, by providing what it bills as "the latest and most comprehensive Internet coverage" about the company's legal troubles, including up-to-date legal opinions and virtual viewpoints. "The case is landmark in that peer-to-peer Web sites are popping up for users to swap all kinds of digital entertainment files online whether it be family photos, music videos or clips from old films," FindLaw said in a press release. "FindLaw aims to stay on top of this issue and provide a variety of resources related to it."

http://napster.findlaw.com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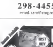

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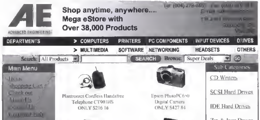

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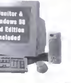

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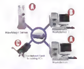

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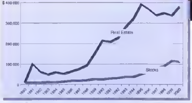

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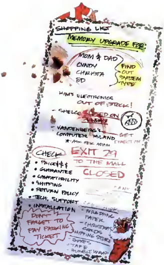

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